THE THERAPEUTIC GAZETTE

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ORIGINAL COMMUNICATIONS.

THE LIMITATIONS AND SCOPE OF OFFICE TREATMENT IN GYNECOLOGY.[1]

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It has been the fortune of the writer to inquire into the medical history of patients in private practice from many widely separated localities, sixty-five cities and towns being represented in one year. It has been more than interesting to find what a large proportion have tried the irregular psuedo-medical cults, even though they claim that their regular physicians are well-known and capable practitioners. There is some reason for this, and it has a bearing on the present subject.

Using "gynecology" now in not too narrow a sense, as a branch of medicine and surgery leading to an understanding and study of the maladies which distress women, it includes various associated fields which must be covered when dealing with the concrete case. Certainly a study must include the intestine, kidney, bladder, and often the gall-ducts. Indeed, to understand women and their ills one must be something of a neurologist and all the time a student of human nature.

In the period of gynecological practice which preceded the accurate knowledge of pelvic disease, office treatment had a large vogue. Later arose a new pathology, based largely on the inflamed tubes. Active operating surgeons cast reflections on the scientific standing of those who made office applications. We have now, however, reached a period where from the study of pathological conditions on the operating table we are no longer under the control of the dogmatist who vituperates all who see that some forms of disease do not require operation. Nor yet are we convinced by that neurologist who fails to see anything in the diseases of women except surgery for tumors or else rest cure.

While it is true that since the advent of surgery the office treatment has become relatively less important, it is a grave question whether the swing has not been too far, as in therapeutics, toward a nihilism which is far from helpful to our patients and not creditable to us who profess to have at heart the health, comfort, happiness, and safety of the individual patient.

Uneducated and commercial cults have recently flourished, have, temporarily at least, taken many of our intelligent patients, and have in part usurped our position as advisers and helpers. Why?

Aside from dogmatic promise, which is indefensible, they *do* something, which as far as that goes is at least psychologically commendable. Many chronic sufferers are tired of being analyzed, to be finally told that they have no operable organic disorder, and that they should take nux vomica and a change of air.

I once suggested to a lady that she see an oculist. She said: "I have been diagnosed in every principal city from San Francisco to New York, but no one finds

[1]Read before the Lycoming County Medical Society, Williamsport, September, 1911.

anything. Now I am suffering from a fearful headache, and I want you to do something for it."

A gynecological patient asked me to treat her boy's ear. As the matter seemed a simple one I suggested that her family physician, whom I knew, could do it. She answered: "He is most unsatisfactory. He never makes an examination of anything, and never treats anything; he simply writes a prescription." That is the point. We must do something, but as scientific men and as honest men we must do the best that is known in the right direction. Has one a right to assume that a pain is functional, dismissing the patient with a nerve tonic? She feels miserable; a routine prescription will send her to the osteopath, and we should be able to give more help than he. If the condition is neurotic only no local treatment is justifiable, but many things are dismissed as neurotic without real investigation, and behind many a neurosis is a nagging, real distress. Some men never examine a rectum, some never a spine; many never properly study a stomach, bladder, or kidney; and more never properly examine any pelvic organ. More and better examinations would lead to fewer diagnoses of so-called rheumatism, just as fewer "malarias" are now seen. A lesson of overdosing was learned from homeopathy. While now we smile at the absurd diagnosis of dislocation made by our neighbors the osteopaths, let us not forget that there is such a condition as movable sacroiliac joint, which some had overlooked, and that some sciaticas, for example, have a physical basis here.

A patient from another city recently mentioned a cure of constipation by osteopathy. Inquiry showed that it was permanent and was due to massage. This happy end should have been accomplished by the regular physician; not that he should have personally given massage, but having excluded by office study other causes than atony, and following the work of a good masseuse, he could have kept the patient up to a regimen, personally noting the changes. Electricity will really help, and may with little loss of time be personally given while attending to the other details which are essential to success. General directions are not grasped and are rarely followed unless personally checked up by the physician.

Diagnosis is at the bottom of all treatment, but in gynecology it defines sharply what may be done in the office. It is not fair to so treat early carcinoma, but it is not fair to radically operate on the infiltrated patient. It is not fair to treat pyosalpinx or relapsing appendicitis with tampons and electricity. Nor is it fair to place a pessary against unreduced retroversion or an inflamed tube. Exploratory operation may not be fair, and it cannot be if a little office treatment and patience would make clear a gouty pain or trouble due to sluggish living.

Faulty pelvic diagnosis is not usually due to lack of *x*-ray picture or differential blood-count, but to failure to use the plain old facilities intelligently. Nearly all the information which the skilled diagnostician obtains he gets from:

1. A short systematic history of cardinal points.

2. A good light, an empty bowel, a proper position on a table, and from gentleness.

3. The trained touch.

Valuable as the laboratory methods often are, the points just mentioned outweigh them completely.

Too much stress cannot be laid on the systematic card history of every case when first seen. Nothing will replace it later.

OFFICE TREATMENT.

It is understood that surgical conditions are excluded absolutely except in the case of the absolute refusal of the patient to undergo operation. Fibroid tumors were electrically treated for a time, but I know of no competent man who would advise this at present. All growing tumors, all those complicated by attacks of peritonitis, all cysts, and all large growths require re-

moval, whether benign or malignant. Fibroids only as large as a teacup, not bleeding, growing, or obstructing, need neither treatment nor removal. Unlike the early carcinoma, the widely infiltrating disease should be first destroyed by cautery at home or in hospital, and then when granulation is well established may be treated in the office with very great benefit. It is not fair to abandon these patients to a hopeless life with morphine and a douche when they may be made infinitely more comfortable. One of the best methods which also prevents the offensive decomposition of discharges is the application of acetone weekly or oftener. A tubular speculum is used to protect the sound tissues while a strip of gauze saturated with acetone is packed against the ulcerating point. It may remain there for half an hour with advantage, the excess being carefully removed after the withdrawal of the gauze and a vaselin tampon inserted. Very small and superficial recurrences after operation may be cauterized almost painlessly with the electrocautery point. There is at the present time nothing known which inhibits cancer growth so effectively as the actual cautery when it can be applied. Especial care should be taken, however, not to use tenaculums and so start grafts. Digestive powders are of some use in cleaning up foul surfaces, but are far inferior to acetone.

Uterine prolapse was at one time cured with difficulty; this no longer is true. The patient must be very feeble indeed who cannot bear an anesthetic skilfully given while this form of hernia is cured. Some, however, especially the aged and timid, absolutely refuse operation, and these may be kept fairly comfortable by intelligent care.

Lacerated cervix should always be prepared for operation by local treatment, especially the puncture of retention cysts. Otherwise a more or less mutilating resection is required.

The use of the pessary opens a broad subject, on which there is a variety of opinion. Mechanical ability is essential on the part of the physician. In a limited field, however, its value is undoubted—for example, in acute retroversion following a fall or heavy strain. Again a few weeks after labor or miscarriage, when the uterus is soft and heavy, while its supports are relaxed, if the organ be allowed to assume the retroverted position this will be permanently retained; while if on examination in the third or fourth week retroversion is found, and it be immediately reduced and retained in position by a pessary, the parts will involute in a correct position, probably allowing the patient to escape either permanent disability or an operation. After three or four months the pessary may be discarded, but while it is worn strict supervision of its efficiency will be required or harm will be done. No pessary should be worn permanently; it should rather be discarded and a cure obtained by operative means.

Microscopical and cultural demonstration of the gonococcus is most necessary. If present there is much less chance for conservative operation on the tubes. If undertaken at all the local treatment of gonorrhea belongs to the office in the subacute and chronic stages. It requires direct application to the vagina distended in a gravity position.

Tuberculosis of the tubes if suspected or demonstrated requires early surgery, which removes the focus at once and, if the process is localized, as it often is, cures the patient. No time should be lost by serum or other treatment.

Bladder diseases are under direct inspection by the modern small-caliber electric cystoscope, which can be readily used in the office without pain.

Minor degrees of inflammation of a chronic type, involving uterosacral ligaments, broad ligaments, the remaining adhesions after peritonitis in some forms, minor and non-surgical degrees of ovaritis, etc., may be greatly helped toward cure by a systematic use of the galvanic or other

current, tampons, and medication. Persons so affected often suffer much disability and distress, deserving painstaking attention. Many surgeons refuse to have anything to do with them, as a condition must be operative or nothing in their eyes. Surgery, however, has nothing to offer and is not justifiable here. If a physician cares to devote the necessary time and the patient is anxious to get well, very satisfactory results can be obtained, but diagnosis must be clear or there will be disappointment. There is a group which has been operated on (of course, by some one else) where the symptoms remain. Are not operative patients often dismissed too soon, with many discomforts which could be helped?

Vibratory massage has no place in gynecological practice. The use of high-frequency currents and the therapeutic *x*-ray are on an experimental basis as yet, though praised by a few who have used them systematically. This field needs analytical study.

Sinusoidal and other currents have in my hands given considerable relief in traumatic neuralgias or nerve involvement in scars.

Aseptic office technique is one of the most important of the advances of late years. Gloves should be used in every case, and after boiling they may conveniently be thrown in carbolic solution. They serve to protect both the physician and patient. Were it not for frequent violations of the rule, it would seem unnecessary to say that all instruments should be boiled before and after using. Especially is the boiled and aseptically used catheter most important. A useful practical method of handling the flexible catheter, which is abused so often, is to pour a lubricant from a collapsible tube upon a bit of sterile gauze, now supplied in small pieces separately wrapped and called "individual dressings." With this bit of gauze the catheter may then be aseptically lubricated and introduced.

Curettage in the office without anesthesia cannot be too strongly condemned. The field cannot be thoroughly washed or sterilized, hence the patient is exposed to infection. Many cases of salpingitis I have seen which had originated in that way, and it should never be done. Give them ether at home, boil the instruments, and make the field aseptic. This applies with especial force to the puerperal state following miscarriage.

There are a great many patients who are made very uncomfortable by comparatively minor conditions. They may not know what is the matter, but they do know that no greater health and comfort follow ordinary medication. It is necessary to go directly to the root of the trouble if that can be found. Take such a peace destroyer as pruritus ani or vulvæ, or a local eczema due to an irritating discharge. It may tax all our skill and ingenuity, but it is certainly a duty to search out and cure every source of irritation. Not only must skin action, kidney function, diet, exercise, and bathing be regulated, but such conditions as hemorrhoids, fissures, and other rectal diseases, as well as enterozoa, must be looked for and cured. We must get rid of caruncles, stop irritating discharges, subdue vesical irritation by local application to the trigone, stretching the urethra by sounds for chronic urethritis, etc. If a woman gets out of bed eight times at night from an irritable and curable bladder trigonitis, she suffers from lack of rest just as much as though the cause were in the nervous system, besides being made liable to eczema and other irritations from local wetting.

My plea is not that we shall neglect the greater things, not that we shall alarm or impoverish patients by undue attention to trivialities, but that as earnest men dealing with those who are really suffering, and who are anxious for a deserved cure, we may perhaps revise our too scientific attitude, and not too much despise the day of small things. Of course, each must choose

for himself what he cares to do. A very few are too busy with major work to attend to office practice; some are too indolent to study minutiæ; some have no interest in details of any kind and only regard spectacular conditions. For the conscientious man of wide knowledge there is waiting in any community a considerable field among those who have had or do not need surgery, and who will appreciate intelligent attention.

1831 CHESTNUT STREET.

THE VALUE OF EXTRACT CORPORA LUTEA.

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The annoying symptom-complex associated with induction of the artificial climacteric is one of the unfortunate circumstances following the removal of both ovaries, and more rarely and to a minor degree that of one. We shall not here enter into a description of the symptoms, as they are many and varied, differing in the individual case, but that such may be serious and the condition at times become a menace to the life or future well-being of the patient is well established.

Endeavoring to overcome this troublesome postoperative phase, the writer began about two years ago to investigate and then experiment with the extract of the entire ovarian substance and also with extract of corpora lutea, prepared by Parke, Davis & Co. The effects from the entire gland preparation were not encouraging, but so gratifying were those following the use of corpora lutea extract that it was also used in disturbances coincident to the normal menopause, and in derangements depending, in his opinion, upon ovarian disease resulting in decreased or perverted function of these glands.

At the present time it is regarded as true by most physiologists that aside from the ovarian province of ovulation, these glands also secrete a peculiar material which, accepted into the system, plays an important part in the maintenance of the normal female physiological balance in the same way as it is supposed that the substance secreted by the plasma or interstitial cells of the testicle performs a similar function in the male. Whether, however, this material is secreted by the medulla, cortex, or Graafian follicle of the ovary, or is the result of a secretive function of the entire ovary itself, or a process associated with the formation or presence of the corpora lutea, is a question the answer to which is still in abeyance.

It is not the writer's present intention to enter into an extensive exposition of the probable reasons why the use of extract corpora lutea in selected cases frequently gives the hoped-for result, for at best, in the light of our present knowledge of the complete function of the ovary, the use of extracts of this organ is still, to a very large extent, empirical. In view, however, of the great interest shown in all forms of organotherapy, he submits deductions based upon a clinical experience of about eighteen months, trusting that such may be of some positive or negative interest.

Attempting to reason why results from the use of extract corpora lutea so far exceeded those following the use of the entire ovarian substance, the writer arrived at the following briefly stated conclusions:

Change from the neutral sex type, such as filling out of the mammæ, growth of pubic hair, gradual development of facial and other physical and temperamental characteristics, in the female become decidedly apparent only after the establishment of the

menstrual epoch. This at least is supposed to be closely correlated with the ripening of the Graafian follicle and extrusion of the ovum, immediately followed by the formation of lutein cells and the corpus luteum of menstruation. "Fraenkel believes the cells of the corpus luteum are the source of an internal secretion necessary for the life of the fetus. Removal of corpora lutèa causes abortion, but this does not occur if a corpus luteum be grafted in some part of the body" (Green-Bosanquet)

The lutein cells of the corpus luteum show many points of similarity to the plasma cells of the testicle, most prominent of which is that both contain a peculiar granular yellow pigment. Some writers have gone so far as to advance a hypothesis that the toxemias of pregnancy may in some way be due, in part at least, to perverted ovarian secretion.

With the establishment of the climacteric there ceases to occur a rupturing of the Graafian follicle, extrusion of the ovum, or consequent formation of lutein cells and corpus luteum. The blood supply of the ovary is reduced, the entire gland gradually atrophies, or the medullary tissue infiltrates the corticular zone, so that the gland ceases to perform its specific functions. The glandular tissue of the breasts atrophies, or in those inclined to obesity fatty infiltration of this as well as fatty deposits in other parts may occur. The features at times become somewhat coarse, a growth of hair may develop on the face, the voice in many instances loses its soft timbre, quite frequently the woman loses "that undefinable something known as feminine charm," and on the whole there seems to be an effort on the part of nature to a reversion to the neutral type.

In view of the foregoing, it seems plausible to the writer that the lutein cells forming the corpus luteum exert an important influence upon the peculiar female physiological balance, and theoretically at least the introduction of this substance into a system deficient in the normal secretion should give good results, just as the use of thyroid extract in conditions dependent upon subnormal function of the thyroid gland has been of benefit. The writer will try to show that this is practically true by the report of observations. The following groups represent a total series of 51 cases treated with the corpora lutea:

Group 1.—Eleven single ovariotomies. Seven were performed by the writer, and four which had been operated on by others were seen by me within six months after the operation. In six of these cases the symptoms entirely disappeared, two showed improvement, and three apparently showed no effects from the treatment.

Group 2.—Nine double ovariotomies. Six were performed by the writer, and three, which were operated on by other surgeons, were seen by me at intervals varying from two months to two years after operation. Two cases are included in this group which will be reported in detail. In each of these cases one ovary had been previously removed by other operators, and the remaining one in each case was removed later by the writer. In four cases there was a disappearance of all symptoms, two cases showed more or less improvement, and one was apparently not benefited. Two of the cases in this group seemed to get worse under the treatment, and medication was discontinued on account of tachycardia.

Group 3.—Fourteen cases of menopause with symptoms appearing between the ages of forty-one and fifty years. In six of these cases the symptoms disappeared at a period ranging from three weeks to five months, two made marked improvement, and six were not noticeably benefited.

Group 4.—Seventeen cases of ovarian disease of various types. In the majority of cases in this group operation was definitely indicated, but refused by the patient. It is fair to say that general tonics and local treatment were usually given in conjunction with the extract of corpora lutea to this class of patients. In five of these cases,

three of which were simple ovaritis, the results were good, two were slightly improved, and ten were negative.

In all cases included in these four groups corpora lutea was administered in 5-grain capsules three times daily.

SUMMARY OF CASES.

No. of case.	Type of case.	Cured.	Improved.	No effect.	Worse.
11	One ovary removed.	6	2	3	
9	Both ovaries "	4	2	1	2
14	Menopause.....	6	2	6	
		16	6	10	2
17	Ovarian disease, no operation	5	2	10	

In the last group none of the five cases were absolutely cured, but the condition was decidedly improved.

In a few days after ingestion of this preparation vascular stimulation was observed in each case to a greater or less extent, and usually disappeared after a state of tolerance had been reached.

In some cases decided flushing of the countenance occurred, or an increase of the same where it had previously been present. In two cases tinnitus aurium occurred, and in 14 cases varying degrees of dizziness. In one case tachycardia developed to such an extent that the drug was discontinued. In about 17 of all the cases the pulse-rate rose from 80-90 to 110-132. In the rest of the cases the increase of rate and tension was not so marked. In most of the cases there was an improvement in the general condition, as in appetite, sleep, etc., though in all cases it should be understood general treatment was also given.

The following is a curtailed report of a few cases taken at random from my case records:

Case 1.—Miss J. E., aged twenty-one. Diagnosis: Double specific pus tubes and ovaries. Operated at St. Vincent's Hospital, March 12, 1910. Discharged March 28, 1910 (patient living out of city). Returned June 13, 1910, with symptoms of pain in back, dragging in limbs, some flashes of pain along spine, etc. Extract corpora lutea given, gr. 5 t. i. d. Patient reported August 4, 1910, saying improvement began about ten days after beginning medication, and has been entirely well since July 25.

Case 2.—Mrs. M. L., aged twenty-eight. History of chronic tubo-ovarian disease and acute peritonitis seven years ago. Present diagnosis, double pyo-oöphoro-salpingitis and acute peritonitis. Operated at Deaconess Hospital, April 5, 1910, at 10.30 P.M. Diagnosis verified; median incision; six or eight ounces free pus in abdominal cavity. Right tube ruptured and general adhesions. Both tubes and ovaries removed; wound closed in layers. Abdominal and vaginal drainage, Fowler's position. Wound healed by first intention. Patient discharged from hospital April 23, 1910, and returned to her home out of city. July 18, 1910, patient wrote complaining of symptoms which were attributed to induced climacteric. Advised to take extract corpora lutea, gr. 5 t. i. d. Did not hear from her until November 5, 1910, when in reply to a letter she stated symptoms were relieved after one to two months' use of the drug.

Case 3.—Mrs. B. A., aged twenty-seven. Both tubes and left ovary removed four years previously by another surgeon. Present status: Cystocele and rectocele; slight lateral laceration of cervix; stenosis of os; endometritis; cystic degeneration of right ovary; chronic appendicitis; retrodeviation of uterus, third degree. Intestinal and omental adhesions. Operation at St. Vincent's Hospital, March 24, 1910. Diagnosis confirmed; necessary vaginal repair. Median abdominal incision; adhesions broken up and part of omentum removed. Right ovary and appendix removed; anterior uterine fixation; incision closed in layers. Discharged from hospital April 14, 1910. Did not see this patient again until July 9, 1911, when I was called to see her at 2 A.M. and found her having a uterine hemorrhage. She said hemorrhage had begun without warning about three hours

before. Upon questioning she admitted to indefinite climacteric symptoms for about six months, not sufficient in severity, however, to cause her to see her physician. Careful abdominal and vaginal examination gave negative findings, with exception of slightly enlarged uterus. Patient bled intermittently for a week before hemorrhage was completely controlled.

The main previous symptoms had been impaired memory, pain in back of neck, inability to change money correctly, etc. About July 20 these symptoms increased, and there also occurred decided abdominal distention, pain and diarrhea, extreme tenderness in hepatic region, terrific pain in head, increase of pulse to 100, temperature never above 100°. Reflexes increased and patient peculiarly sensitive to light and sound. Pupils slightly and unequally dilated. The writer's diagnosis was passive meningeal congestion, probably due to some form of portal obstruction, and this was concurred in by several others who saw her. Patient made a slow recovery, and in November, 1911, still complained of symptoms which were attributed to delayed, induced climacteric. The writer had not previously suggested extract of corpora lutea in this case on account of its effects on the cardiovascular system, but now pulse and heart being in good condition, she was put on extract corpora lutea, 5 grains morning and night, increased after two weeks to three times daily. One drachm of syrup hydriodic acid three times daily was also given. The patient gradually improved, and at this time (January 12, 1912) is apparently well on the road to permanent improvement.

Case 4.—Mrs. R. J. W., aged twenty-nine. Seen April 5, 1911. Diagnosis: Prolapsus uteri, omental and intestinal adhesions, cyst of left ovary and broad ligament. Right ovary, both tubes, and appendix removed by another surgeon some years previously. Operated at Deaconess Hospital, April 29, 1911. Amputation of cervix uteri; repair of anterior and posterior vaginal wall. Removal of left ovary, part of broad ligament, and part of omentum. Returned home from hospital May 20, 1911. About six weeks afterward reported at office complaining of abdominal distention, lancinating pains in back, hot flushes, and night sweats. Complete physical examination negative. Put on extract corpora lutea, gr. 5 t. i. d. Sweating ceased in five days; general symptoms improved in two weeks and entirely ceased in four weeks. Patient visited out of city for two months, and reports that when she felt well had stopped taking capsules, and after about four weeks noticed a return of symptoms, especially sweating. Was again put on extract corpora lutea for one month, since which time she has had no return of symptoms.

Case 5.—Mrs. L. G., aged forty-eight. Seen June, 1911. For four months previously intermittent and scanty menstrual flow, not attended with especial pain; other usual symptoms of menopause concentrated in severe tugging of muscles of neck, back, and posterior thighs. Frequent spells of irritation and depression. Patient started on extract corpora lutea, gr. 5 t. i. d. No improvement for six weeks. Treatment persisted in, gradual improvement beginning about September, 1911. At this time (January, 1912) patient still has menstrual flow, but in other respects reports she feels better than she has in years.

Case 6.—Mrs. S. T., aged forty-four. This patient has had a prolonged climacteric period, symptoms of a classical nature first appearing about three years previously. Irregular menstruation still persists, and she has alarming spells of melancholy or hysteria. Physical findings are negative, examinations having been made by several surgeons, internists, and neurologists. Has been on extract corpora lutea for about a year, with negative results.

432 NEWTON-CLAYPOOL BUILDING.

QUININE AND UREA HYDROCHLORIDE SOLUTION AS A LOCAL ANESTHETIC FOR TONSILLECTOMY.

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The tonsil is recognized as one of the portals of infection for many diseases, therefore to cut off the protruding portion of the offending organ and leave a disease-breeding stump buried between the faucial pillars is faulty surgery. The most offending tonsils, the buried and the sessile varieties, cannot be removed by tonsillotomy, as has been practiced in the past. The medical profession is agreed, and the laity demand, that the whole of the diseased tonsil shall be enucleated.

Tonsillectomy is the operation of election for adults, as it is for children, and the removal of the tonsil has become a major instead of a minor procedure. Therefore, the operation should be performed in a hospital and not in the office.

The adult patient has given the surgeon the most concern because the fallacious notion has gone forth that the removal of the tonsil of the adult is painful and fraught with danger of serious hemorrhage.

The choice of a drug to produce analgesia in the adult has always been a matter of much importance to the surgeon. The ideal local anesthetic should be non-toxic, non-irritating, produce sufficient analgesia to render the removal of the gland painless, and not increase the danger of a hemorrhage.

The drugs used in the past—cocaine hydrochlorate, beta-eucaine, etc.—when employed in sufficient quantity to produce complete anesthesia, many times caused symptoms that were alarming both to the patient and the doctor.

The solution of quinine and urea hydrochloride, one per cent, comes nearer the ideal local anesthetic than any other drug so far introduced for this purpose. It is non-toxic in the dosage required for complete local anesthesia; it is non-irritating, and reduces the danger of hemorrhage to a minimum. In the Michael Reese Hospital, it has been observed that when the quinine and urea hydrochloride solution has been used in tonsillectomy there is almost no bleeding after the patient has left the operating-room, and further, in this hospital a secondary hemorrhage has never been known to follow the use of this drug.

The technique for the operation of tonsillectomy is as follows:

A short time before the operation the patient is given a full meal for the following reasons: First, it has been observed that the analgesic drugs act more profoundly after a patient has taken a full meal; secondly, the patient is more composed; thirdly, after the operation the condition of his throat will prevent his swallowing solid food for a few days.

The patient takes his place on a laryngological chair. His body is covered with a sterile sheet, and in his hands he holds a sterile pus basin. The operator is seated directly in front of the patient. When all is ready, an applicator, armed with a tightly wound pledget of cotton, is saturated with 20-per-cent cocaine hydrochloride solution and applied once to the tonsils, pillars, and the soft palate to produce superficial anesthesia. A sterile hypodermic syringe, with a tubular throat attachment and a fine needle, is filled with a 1-per-cent quinine and urea hydrochloride solution. The solution is injected into the supratonsillar space, two injections are made into the anterior pillar, one at the junction of the upper and the middle one-third and one at the junction of the middle and the lower one-third, the same relative points on the posterior pillar, and a few minims into the tonsil itself. For a successful analgesia two important points must be borne in mind: First, sufficient solution must be injected, not less than 45 to 60 minims for each tonsil; secondly, a wait of not less than ten or fifteen minutes is imperative in order

that complete analgesia be obtained before the operation is begun.

The assistant takes his place on a chair to the right of the operator, places his left arm next to the patient under the right arm of the operator, and holds the tongue depressor in the mouth of the patient. A Pierce knife is now inserted as high as possible into the supratonsillar space, rotated downward and forward beneath the anterior pillar, and the tissue cut. Several sweeps are usually necessary to loosen the pillar from the structure of the tonsil. The tonsil is now grasped with the small-toothed Tydings tonsil forceps and pulled outward and forward. The tonsil being firmly held, the remaining adhesions are cut with a long Allport tonsil knife. The gland, being still held by the forceps, is shelled out of its bed and everted by the use of the handle of a long lemonade spoon. The wire attached to a Tydings snare is now passed over the grasping forcep, back over the protruding gland to its base. The snare is slowly closed and the tonsil is cut off intact, with its capsule attached. The removal will be followed by a rather smart hemorrhage that rapidly checks itself.

The patient is put to bed for twenty-four hours. No gargle or other medication is given for twelve to eighteen hours, at the end of which period a cathartic is given and a hot salicylic acid gargle is ordered to be used every two hours for the next day or two. Following this a mild antiseptic gargle is prescribed.

In conclusion, I beg to again call attention to the following essential points:

First, a relatively large volume of quinine and urea hydrochloride solution must be injected, not less than 45 minims, into each tonsil and its surroundings.

Second, a wait of at least ten and preferably fifteen minutes is essential before the operation is begun.

Third, operation is painless, and danger from hemorrhage is reduced to a minimum.

31 N. State Street.

NOTE ON THIOSINAMINE IN ARTERIOSCLEROSIS.

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While admitting that deductions drawn from a limited experience in the administration of a drug are unreliable, I nevertheless believe that this brief note of a case is striking and worthy of record.

I presume that it will be generally admitted that arteriosclerosis, when once established, is intrinsically progressive and does not tend to recovery or even marked improvement. Especially is this true of the senile type. Great improvement while the patient is taking a given drug may, I think, in such a case as the one herein recorded, be fairly attributed to the action of that drug. In any event I submit the case on its merits.

Captain X., aged seventy, bachelor; occupation, fire insurance. Heredity excellent. One brother died at sixty-four with some disease or other which was said to have been associated with disease of the arteries. The captain's habits had always been unimpeachable, a matter on which I required no evidence, as he had been my patient for nearly thirty years. He had served three active years in the Civil War, but came out apparently none the worse for his experience. There was no history of syphilis. In 1885 I treated the old gentleman for a tight stricture and a secondary pyelocystitis. He recovered, and, strange to say, although not systematically sounded, had no especial trouble thereafter.

About four years ago the patient developed neuritic symptoms and had several retinal hemorrhages. The arteries meanwhile had become markedly enlarged and hardened. The retinal trouble cleared up,

but recurred from time to time. Potassium iodide was given, but I was always skeptical as to its having had any particular effect. In the spring of 1910 the old gentleman developed an attack of grippe with a secondary renal infection. There was almost complete anuria and a condition verging on coma for several days. Recovery, however, was fairly prompt.

During the last two or three years of his life Captain X. suffered from considerable gastric disturbance. For this condition I referred the case to my friend, Dr. M. M. Portis, who was fortunate enough to give the patient complete relief.

August 1, 1910, the patient developed paralytic symptoms, pronounced by Dr. L. H. Mettler to be senile polyneuritis. The patient was unable to walk for several weeks. He finally improved and was able to walk, but his gait never became normal. During the progress of the case the arteries became phenomenally enlarged and hardened. The brachials were as large as an ordinary lead-pencil and so prominent that they could be seen at a considerable distance. The heart showed no evidence of gross disease. The blood-pressure became very high, ranging from 180 to 200, the latter figure being attained a few weeks before death.

The usual routine management of such cases was followed, and the patient went along quite comfortably under careful nursing and dietetic supervision, save in one respect, viz., he worried continually about the condition of his arteries. He spent most of his time feeling of his temporals and brachials and estimating the chances, as he expressed it, of their "growing up altogether and becoming solid."

I had had some apparently favorable experience with thiosinamine in other conditions, and finally concluded to try the drug on my patient. Beginning with gr. $\frac{1}{8}$ t. i. d. in capsule, the dose was gradually increased to gr. j t. i. d. The course of treatment extended over a period of about four months. The result—or apparent "result"—was remarkable. The temporal arteries were reduced to a size no larger than the temporals of the average man of seventy. The brachials were reduced so that they could be detected only by the touch. The radials were proportionately reduced. All of the accessible arteries were perceptibly softer. The high blood-pressure was not altered. The relief to the old gentleman's mind was remarkable. He no longer worried about his arteries, nor did he search for them. The improvement continued for the last six months of his life, and the patient was wont to say that he wondered why he did not get perfectly well when his arteries were "well." There were no urinary symptoms of any consequence save the characteristic large quantity of urine of low specific gravity until five days before the patient's death, which occurred in February, 1912. Uremic symptoms finally developed, and the patient died in coma. There was no change in the urine for several days after mild delirium set in, but two days before death granular and hyaline casts and albumin appeared in the urine.

The condition of this patient's arteries before the thiosinamine was given will be verified by Drs. J. B. Herrick, Wm. H. Wilder, M. M. Portis, L. H. Mettler, and Ralph Johnstone. Dr. Johnstone is in a position to testify to the great improvement in the blood-vessels, as he saw the patient frequently both before and after the treatment.

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HEMOLYTIC JAUNDICE DUE TO MALE-FERN.

The *Lancet* of April 6, 1912, writes editorially on this subject, pointing out that jaundice is a rare result of the administration of male-fern, and, like other toxic results (*e.g.*, amaurosis and sudden death), has been observed principally in Germany and Italy, where doses of the ethereal extract as large as from 15 to 20 grammes

are given. In 1894 Grawitz investigated this jaundice and attributed it to an increased destruction of red corpuscles in the liver, as he found that their number in the blood was reduced after administration of the drug; but this conclusion was based on cases in which jaundice did not occur. In a recent number of the *Progrès Médical* Prof. G. Etienne and Prof. M. Perrin have described two cases in which jaundice occurred, and its hemolytic origin was conclusively shown. A robust man, aged twenty-nine years, suffering from tapeworm, took on September 1, 1910, at 5.45 A.M., capsules containing 6 grammes of ethereal extract of male-fern and 0.12 gramme of calomel. At 7.15 he suffered from colic and passed a normal stool. A quarter of an hour later an attack of diarrhea, lasting twenty-five minutes, began, and a complete tapeworm was evacuated. Vertigo and nausea followed, but ceased when he returned to bed. At 10 o'clock he noticed that his conjunctivæ and skin were yellow, and at 12 that the urine was "brownish." On the following day he came under observation with manifest icterus of the face and subicterus of the trunk and limbs. The pulse was normal and not slowed. The urine was turbid and contained urates in abundance and a trace of albumin. The reactions for biliary pigments and salts were negative. The tongue was furred, but the appetite was preserved. On September 3 the pulse was 68, the splenic dulness measured 6 by 6 centimeters, the liver was normal, the tongue was clean, and the stools were normal. The red corpuscles numbered 4,146,000, and the hemoglobin amounted to 75 per cent. The red blood-corpuscles in general were little deformed, but several were punctated, and there was some corpuscular débris. On September 5 jaundice was no longer distinguishable in the skin, but the conjunctivæ were subicteric. The red corpuscles numbered 5,176,000. During examination they rapidly altered. On September 15 the red corpuscles were normal in every way. In April, 1911, the subicteric tint of the conjunctivæ still persisted.

In another case, communicated by M. de Gaulejac, a healthy man, aged thirty years, took 8 grammes of ethereal extract of male-fern with 1.2 grammes of calomel for tapeworm. The extract was taken in capsules containing half a gramme, two every ten minutes, and the calomel in doses of 0.30 gramme every quarter of an hour, simultaneously with the extract. Four hours after the taking of the first dose of the extract jaundice suddenly appeared, accompanied by great weakness. On the following day the liver was tender, but not enlarged. There was violent headache for three or four days, and incapacity for work for ten or twelve days followed. The jaundice lasted three weeks and the general weakness for more than a month. After the disappearance of the jaundice a discoloration of the mucous membrane remained until the patient recovered his strength. In this case the blood was not examined, but anemia was observed clinically.

It must be noted that in the first case the blood was not examined until forty-eight hours after the beginning of intoxication, and probably was already in process of restoration. The jaundice appears to be due to the action of filicic acid, alone or in combination with the essential oil contained in male-fern. It is curious that in the first case, while the extract appeared to have no immediate action on the liver, that organ was subsequently affected, for the subicteric tinge of the conjunctivæ persisted. Although in these cases the hemolysis takes place principally in the blood, perhaps the liver plays a secondary part. This view is borne out by the experiments of Van Aubel, who produced cirrhosis of the liver by repeated administration of filicic acid to dogs. The cases reported above show that male-fern produces jaundice in the same way as other intoxicants, such as chloroform, essence of turpentine, pyrogallic acid, and toluylenediamine.

EDITORIAL.

THE RELATION OF THE SPECIFIC GRAVITY OF THE BLOOD TO THE TREATMENT OF CHOLERA AND CHOLERAIC DIARRHEA.

We have more than once called attention to the valuable contributions which have been made to this subject by Leonard Rogers, the Professor of Pathology in Calcutta, who is familiar to our readers because of the original contributions which he has made in previous years to our pages. While it is true that cholera is rarely if ever met with by physicians in the United States at the present time, his work shows that severe choleraic diarrhea may be treated in a similar manner with the methods which he employs in Asiatic cholera with advantage, and illustrates in an interesting way the application of simple laboratory tests in the control of therapeutic procedure.

In the issue of the *Indian Medical Gazette* for April, 1912, Rogers contributes an article in which, after mentioning the method of estimating the specific gravity of the blood devised by Hammerschlag, he suggests the simpler and more rapid method introduced by Lloyd-Jones. This method consists in having a series of small bottles of about ½-ounce capacity containing mixtures of glycerin and water of different specific gravity. A small drop of blood obtained from the finger is blown very gently from a capillary tube into the center of one of the bottles. If it sinks at once it is heavier than the fluid, and the bottle of higher specific gravity is next tried. Whereas if it rises in the first bottle, the lower one is taken and the operation repeated until the drop just floats in the center of the bottle for a second or two. Thus, if it rises in the bottle which has the mixture which gives a specific gravity of 1064 and sinks in the bottle which has a specific gravity of 1062, an intermediate number of 1063 is the approximately correct figure. As Rogers points out, this method is a very quick and simple one and the apparatus very inexpensive. He usually starts with one bottle at 1048 and goes up to 1070, the normal specific gravity of the blood for an adult being 1056. If infants are to be studied, the lowest bottle ought to be as low as 1042, as the normal specific gravity for children under two years of age is about 1048. The actual specific gravity of the mixture of glycerin and water should be verified with a reliable hydrometer, and a crystal of thymol may be added to each bottle to prevent the growth of molds.

It will be remembered that Rogers has strongly advocated the employment of a hypertonic salt solution in the treatment of choleraic conditions in which the specific gravity of the blood is abnormally high because of the drain produced by the intestinal discharges. He uses this whenever the blood-pressure is below 70 millimeters and the specific gravity over 1060. If the specific gravity is as high as 1063, indicating that a very great concentration of the blood has taken place, the transfusion should be used even if the blood-pressure is above 70 millimeters. When members of the Anglo-Saxon race are being studied he believes that a proper standard indicating saline infusion is a blood-pressure of 80 millimeters, as Anglo-Saxons run a somewhat higher blood-pressure than East Indians. The advantage of this method is that collapse is avoided or combated and uremia and pneumonia are avoided. The quantity of saline which is injected intravenously amounts to from three to five pints, according to the gravity of the condition and the size of the patient.

That this method of treatment produces excellent results is shown from the fact that in 56 severe cases of cholera, all of which had a specific gravity over 1063 when first seen, there were 48 recoveries, or 85 per cent, two of the eight deaths being due to lung complications and occurring in patients desperately ill when ad-

mitted. When the specific gravity of the blood is as high as 1065 in an adult male, Rogers thinks that five pints should be slowly transfused. It will be recalled that this method not only combats collapse, but that it also later on tends to reëstablishment of urinary secretion, for this secretion is commonly increased markedly a short time after the first injection is given. The later the patient comes under observation and the higher the specific gravity of his blood, the greater is the danger from renal inactivity.

When the specific gravity is as low as 1060, an ordinary normal saline injection may be used which is passed into a vein at the rate of about one ounce a minute, since by this slow method pulmonary edema is avoided, and under these circumstances one or two pints are sufficient. If it is not over 1060, one pint may be sufficient, and under these circumstances, too, the fluid may be given subcutaneously into the abdominal wall rather than directly into a vein, and the injection repeated every four to six hours until the specific gravity falls to 1050 or even lower, but the injections should not be continued if the specific gravity falls below 1045.

In order to explain his method in greater detail, Rogers discusses the case of a well-known European successfully treated by the intravenous injection of five pints of hypertonic saline and about 70 grains permanganate of potash by the mouth, the latter drug being given in this quantity within a period of five hours in keratin-coated pills made for him by Parke, Davis & Co. The result of this use of permanganate was that the rice-water stools changed to green stools within eight hours. At the beginning of the second day the specific gravity of the blood had risen a second time to 1064, and no urine was passed except a few ounces after the first intravenous injection, and this notwithstanding the fact that the blood-pressure was quite normal and the general condition of the patient good. Had it not been for the specific gravity test he would have been considered markedly improved. In view of the fact that the specific gravity of his blood was 1064, two and a half pints of normal saline were transfused, which resulted in the reestablishment of urinary secretion. On the third day the specific gravity again rose to 1060, and a pint of normal saline was given subcutaneously and repeated in five hours. Again urinary secretion began, and later on nearly 300 ounces of urine were passed within forty-eight hours, with the elimination of all the toxins from the system and a great improvement in the general condition. Rogers believes that this case well illustrates the great value of estimating the specific gravity of the blood in controlling treatment, and he does not think that a patient is adequately studied and treated unless such estimations are made, believing that the specific gravity apparatus which he describes is as essential as the sphygmomanometer.

It is interesting to note in this connection that in the same issue of the *Indian Medical Gazette* Bishop details his experience not only with the administration of permanganate of potash internally, but reports the results which he has obtained from the intraperitoneal administration of hypertonic salt solution in cholera, which he believes to be somewhat more readily performed than the intravenous injection. Personally, we would prefer Rogers's plan, but when there are many cases to be treated Bishop's plan may be more convenient. He follows the same rules in regard to blood-pressure as are followed by Rogers, and uses a trocar and cannula which is passed through the abdominal wall just below and a little to one side of the umbilicus where the peritoneum is attached to the posterior surface of the anterior abdominal wall. The skin can be sterilized with iodine or a drop or two of pure carbolic acid. The tissues are drawn taut and pulled toward the middle line immediately below the umbilicus before the cannula is thrust through the wall. The hypertonic solution is allowed to run in at the rate of a pint in four or five minutes, being of course ade-

quately warmed, and the amount is governed by the blood-pressure. Both from his clinical experience and from autopsies, he is sure the intestine is never wounded.

As we have already pointed out, these methods may be advantageously employed in all probability in severe choleraic diarrheas which threaten the patient's life and which present the same indications in the blood-pressure and in the specific gravity of the blood which are presented by those types of diarrhea which are not due to the comma bacillus. As a rule, it is probably better to give injections often and in moderate quantity than to give a very large amount at once, since if given too freely dyspnea and pulmonary edema may be induced.

THE EVIL EFFECTS OF MENTHOL.

Menthol, the camphoraceous substance obtained from oil of peppermint, is so largely used in medicine for various purposes and so rarely produces disagreeable effects that few practitioners think of it as a substance which may possibly exercise an evil influence, yet we note in *La Presse Médicale* of February 7, 1912, a paper by Leroux in which he goes over the literature of this subject extensively and presents evidence to the effect that menthol is not always the harmless substance which it is thought to be. Indeed, he shows that the accidents from its use may vary from very mild untoward effects to those which are extremely grave. For example, in a newborn infant, for the purpose of facilitating nasal respiration and so permitting the child to freely nurse, there was introduced into the nares a drop of oil containing one per cent of menthol. The child immediately appeared asphyxiated and cyanotic, the pulse became imperceptible, and it was only after the child had been inverted and energetic friction and artificial respiration resorted to that the dangerous symptoms disappeared, after the expulsion from the respiratory passages of a considerable quantity of mucus. A somewhat similar train of symptoms was also observed in a child of one month who had been given menthol in the same way, except that the circulatory failure resembled the untoward effects produced by chloroform. Leroux not only quotes a former paper of his but also one by Mayet, of Lyon, in which a girl of four months had introduced into the nares vaselin-menthol, and who suffered from such severe asphyxia in ten minutes that death seemed inevitable. Here, again, flagellation and suction upon the nares whereby mucus was removed from the respiratory passages, artificial respiration, a hot bath, and counter-irritation saved life. In still another child of ten months several drops of mentholated oil (two per cent), when introduced into the nose for the relief of a coryza, produced equally severe interference to respiration.

Altogether Leroux gives references to no less than thirteen articles by different contributors to this subject. Most of the cases reported have occurred within the last two or three years. Some of them have not only had obstruction of respiration accompanied by an excessive secretion of mucus, but there has also been evidence of spasm of the glottis with cyanosis, convulsive movements and syncope, and one case reported by Gomet, a child of one month having received in the nostrils vaselin-menthol of two-per-cent strength, very shortly developed intense dyspnea. In other instances which he quotes the symptoms were by no means so grave as those already cited, but consisted in marked pain in the nose, intense irritation seeming to be set up by the drug. In one instance an intense conjunctivitis developed. In still another such an intense inflammation of the skin of the face occurred as to make it resemble erysipelas, as there was thickening of the skin, tumefaction with redness, and violent headache. We have seen several patients in whom the too free use of menthol, locally, in the nose apparently produced a herpetic eruption. Finally, Leroux points out that certain patients

seem to develop a condition of "mentholism," which is analogous to cocainism or morphinism, in that the patient continually inhales the menthol vapor in order to get relief from nasal congestion, and that this produces a constant irritation with hypertrophy of the nasal mucous membrane, which can only be treated by galvanocautery or turbinotomy.

THE PERCENTAGES OF ETHER VAPOR USED IN THE OPEN METHOD.

We wish to call attention to an interesting communication in regard to this subject published by Hewitt and Symes in the *Lancet* of January 27, 1912, the more so as the open method of giving ether, like the administration of ether itself when first introduced into that country, is now widely employed, and by virtue of the good results which follow its use is, we believe, doing much to supplant chloroform by ether in the practice of surgeons in Great Britain and Germany.

We may add that the open method is, in our belief, the only one by which ether should be given. It consists, as most of our readers know, in dropping the ether upon an Allis or Esmarch inhaler instead of pouring it upon a closed inhaler in a manner which was practiced some years ago. The plan, of course, uses more ether in that a greater quantity of the vapor escapes into the atmosphere, but it practically puts aside complications during and after operation to so large a degree that this so-called waste of ether cannot be regarded seriously. We are interested to know that Hewitt and Symes are strong advocates of the preliminary hypodermic injection of 1/100 to 1/120 of atropine three-quarters of an hour before the ether is administered, since by this means excessive secretion of mucus in the respiratory passages is prevented, and there is less danger of cardioinhibitory shock. In cases in which the patient is very nervous or there seems to be some special indication for it, morphine can be combined with the atropine, and this combination is now largely employed, although we agree with Hewitt and Symes in thinking that in the majority of instances the atropine alone is all that is essential. We are the more interested in this matter because as long ago as 1893, in a report made to the government of Hyderabad, India, the writer of this editorial and Thornton pointed out how greatly the safety of the patient is increased by this preliminary use of atropine, and for some years prior to that date we had taught students that this was true.

In most of their cases Hewitt and Symes state that they obtain the best results by starting the anesthesia with chloroform, administered drop by drop upon a Skinner's mask. By this means nervousness and hyperesthesia are dissipated. At the end of about two minutes the chloroform is replaced by a mixture of chloroform and ether (two parts of chloroform to three of ether), which serves to still further deepen anesthesia. This mixture is also used for two minutes, and at the end of about four minutes from the commencement of the administration of anesthetics, ether itself is used alone. By this means all struggling and excitement is put aside.

Concerning the main point of their investigation, namely, the amount of ether vapor actually administered by this method, they state that the percentage of ether supplied to the patient when it is dropped upon a Skinner's mask lies between five and fifteen, according to the freedom with which the liquid drug is employed. If gauze is used in the inhaler it yields a higher percentage than lint or flannel, and the percentage depends roughly according to the number of layers. If the inhaler is supplied with flannel or lint so adjusted that all inspirations and expirations pass through the fabric, a more or less even percentage, usually eight to nine per cent, may be depended upon.

Finally, it is interesting to note that when Hewitt and Symes employ the open method they place a ring-shaped pad around the nose and mouth of the patient, and upon

this place the inhaler. By this means the patient cannot inspire or expire air laterally but only through the gauze, lint, or flannel which is stretched over the wire frame.

AN IMPORTANT STATEMENT CONCERNING CHLOROFORM.

At the last meeting of the American Medical Association a special committee appointed to consider the subject of anesthesia made a report to the Association which contains many important statements. To some of these a majority of the profession will be willing to subscribe, but to others we believe exceptions will be taken.

After pointing out the fact that in the administration of an anesthetic one who is trained in the use of such a drug should be employed, and emphasizing the fact that surgical anesthesia is a grave condition into which the patient is carried in order that he may be relieved of pain, the committee proceeds to disapprove of the common practice of permitting any one of a series of resident physicians to administer such drugs, and insists very properly upon every precaution being taken that accidents due to the lethal effect of these substances be prevented.

Against its first definite conclusion, however, we wish to enter a respectful protest. For many years we have taught that chloroform is a dangerous drug which should always be treated with the greatest respect and should not be employed unless there were good reasons for its use. In no way receding from this attitude, we believe that the statement of the committee is far too sweeping and may lead to serious legal complications in the event of a physician deeming chloroform the best drug for a given case and using it. The dogmatic statement that "the use of chloroform as an anesthetic for major operations is no longer justifiable" is, we believe, not correct without some qualifying clause.

The second statement, that "scientific investigation and clinical experience agree in demonstrating that necrosis of the liver follows in a by no means inconsiderable percentage of cases" when chloroform is used is equally to be criticized. Much, of course, depends upon the meaning of the term "by no means inconsiderable percentage." As a matter of fact we believe that the percentage is exceedingly small.

We will watch with interest what our Southern colleagues have to say in regard to this condemnation of one of their favorite remedies.

Again, we believe that the statement that no precaution can be intelligently taken against the toxic effect of chloroform is not true without being properly qualified, for it has been shown that if the patient is well fed, and particularly if he has had an adequate quantity of carbohydrate food, the danger of postanesthetic chloroform poisoning is materially diminished.

The next sentence, in which the statement is made that "the surgeon whose patient dies in this manner a day or two after operation must face the responsibility of having knowingly taken an unnecessary chance and lost" is, we believe, also too sweeping in its nature, for even those who do not believe in the general use of chloroform are firmly convinced that in certain cases it is the anesthetic of choice.

In the third recommendation the somewhat surprising indorsement is given to chloroform as "a convenient drug for initiating anesthesia in alcoholics and other difficult subjects." This statement, we think, arises from the fact that the members of the committee working in a physiological laboratory are not as familiar with clinical experience as they might be; for if there is one universally accepted idea among surgeons in regard to chloroform it is that "alcoholics and other difficult subjects" [by which latter term we presume the committee means those who are athletic and who struggle against the anesthetic] are particularly susceptible to the lethal effects of this drug and exceedingly prone to suffer sudden death under its use.

While there is much that is correct in the fourth recommendation in regard to ether and the quantity of CO_2 in the blood and the condition which has been chiefly de-

scribed by Henderson, the chairman of the committee, as "acapnia," it is only fair to remind our readers that the relationship of this condition to accidents during the administration of anesthetics is not given the importance that Dr. Henderson attaches to it, by fellow-workers in other physiological laboratories, as was shown by the discussion which followed his remarks at the last annual meeting of the American Physiological Society.

We note with interest that the committee is favorably inclined toward the use of morphine half an hour or more before giving the anesthetic, although it points out that morphine has been objected to on the ground that it depresses respiration. As a matter of fact we do not think that this is the chief objection which can be urged against morphine under these circumstances. Unless given in too large a dose the morphine does not interfere with the exhalation of the anesthetic, but is prone to produce secondary depression and nausea after the patient returns to consciousness. The use of tanks of oxygen containing 8 or 10 per cent of CO_2, as suggested by the committee, will not, we believe, result in the avoidance of this objection to the drug.

The statement that nitrous oxide is, of course, by long odds the safest of all anesthetics, is universally received as correct.

We cannot help wishing that before making some of the sweeping statements which we have quoted the committee had submitted its conclusions to practical surgeons and anesthetists. Under these circumstances results would have been achieved which would have been of greater value to the practicing physician and surgeon. We differ from the committee when it recommends that hereafter the President of the Association in appointing the Commitee on Anesthesia shall not appoint surgeons on it, but rather those who have made special investigations upon these drugs, presumably in the physiological laboratory.

If the resolutions which we have quoted serve to impress the profession in general with the very correct idea that all surgical anesthesia possesses elements of danger, they will undoubtedly do good. On the other hand, the dogmatic statement, already quoted, that the use of chloroform as an anesthetic is no longer justifiable, is not only incorrect but will certainly lead to some members of the profession being subjected to a lawsuit, although the best judgment of the physician in a given case has been that chloroform was the drug of choice. Such a sweeping statement as this does not receive the respectful attention that a more moderate statement would engender, and practically puts the opinion of the five members of the committee against the opinion and practice of thousands of active practitioners in the Southern United States and in other parts of the world where chloroform is, for various reasons, distinctly the drug which is employed, which ought to be employed, and which must be employed.

THYMECTOMY IN HYPERTROPHY OF THE THYMUS.

Olivier ascribes the first operation done for the relief of thymus hypertrophy in 1896 to Rehn (*Journal de Chirurgie*, tome viii, No. 3, March, 1912). Since then 42 cases have been published. Subtotal and subcapsular thymectomy is the operation of choice. It is said to be extremely easy, readily borne by the youngest infants—indeed, so simple that every practitioner should be able to perform it without the least fear of any serious accident. It is, however, only a simple and safe operation under certain conditions. Drainage should never be practiced, since an open wound insures suppuration. In these young subjects, never under perfect control, preliminary or consecutive tracheotomy is never indicated, since this inevitably leads to infection. Nor should the operation be performed in the presence of infection, as from suppurating glands, unless the procedure be one of emergency.

The symptoms of enlarged thymus appear in two forms, the one continuous, the

other intermittent. In the continuous form the infant breathes badly and exhibits crises of suffocation lasting from ten to fifteen minutes, with periods of absolute apnea. There is often stridor, prominence of the sternal and parasternal region, and the detection of a tumor rising on expiration and palpable in the suprasternal notch. There is slight dulness on percussion and increased radiographic shadow. All these symptoms may be readily caused by tracheal or bronchial adenopathy, in which case operative procedure upon the thymus is of course useless. At times a differential diagnosis is impossible; it is of vital importance because four thymectomies done under a mistaken diagnosis resulted in four deaths.

When the cardinal symptom, stridor, is really due to hypertrophied thymus, thymectomy is absolutely indicated. In 28 cases of the continuous form operated upon there were eight deaths and 20 cures. Dyspnea disappeared immediately and permanently in 15 cases, rapidly in five. It disappeared and reappeared in three cases. The attack promptly cleared up in the great majority.

The intermittent form usually occurs in children somewhat older than the former—*i.e.*, in the second half of the first year. The attacks come on suddenly and last four or five minutes, followed by an immediate complete return to health. There are intervals of weeks or months with no symptoms. The child falls each time as though dead in asphyxia. Aside from the attacks of suffocation, there are only two symptoms—stridor, most marked on expiration, without cyanosis or dyspnea, developing at night from the time the infant is laid down, and hiccough. The attacks are characterized by their suddenness and the complete absence of symptoms during the intervals. These symptoms closely resemble idiopathic spasm of the glottis. Indeed, this condition is often associated with hypertrophy of the thymus. This spasm of the glottis is not of thymic origin, but is due to an alteration of the parathyroids, which have become insufficient. In idiopathic spasm of the glottis apparently nothing is to be hoped for from thymectomy, but hypertrophy of the thymus, without being the cause of the spasm, nor its effect, can exist with it and aggravate it. Therefore thymectomy should be performed. Although it will not prevent the spasms it will diminish them considerably. Six thymectomies have been practiced under these circumstances, four being followed by complete cure and one without result, the infant having perished a few hours after operation without the least signs of asphyxia. One was followed by a temporary cure, but some months later the spasm recurred, though without cyanosis or complete apnea.

The author concludes that the treatment of hypertrophy of the thymus is always a surgical treatment, that it is an easy operation, attended by no mortality if drainage be omitted, that of the 42 cases reported 25 have recovered and 15 have died. In not a single instance was death due to the operation itself. Operation has cured the permanent dyspnea in 25 cases out of 28, and the stridor in 12 cases out of 16.

That the cause of symptoms incident to hypertrophied thymus is not laryngeal pressure alone has been well shown by clinical studies. It is rather incident to vascular obstruction, particularly of the great veins, to resultant heart strain, and to an added muscular spasm, which accounts for the hyperacute attacks. It is probable that with attention called to this condition many cases will be discussed and subjected to operation. Nor, given a correct diagnosis, is there reason to look for any but good results.

THE MICROCOCCUS CATARRHALIS AS A CAUSE OF INFLAMMATION IN THE GENITO-URINARY TRACT.

Ayres, in discussing this subject in the *American Journal of Surgery* for March, 1912, considers only the two Gram negative diplococci found in the genito-urinary tract, namely, the gonococcus and its twin, the micrococcus catarrhalis. The meningo-

coccus, while morphologically simulating these organisms, has never been reported as present in the urethra, although it has often been demonstrated in the nose and pharynx, whilst the gonococcus has been found as the cause of inflammation in practically all the mucous membranes of the body. There exist, then, two microörganisms capable of producing urethritis and differentiable only one from the other by cultural tests. The clinical picture, however, is regarded by Ayres as highly characteristic. He states that a urethritis seen in the early stages, presenting a meatus with swollen and everted lips, a creamy discharge, a large amount of pus in the first specimen of urine, and Gram negative diplococci crowding the pus cells, is unquestionably a true gonorrhea, and for clinical purposes no culture need be taken. But a recent urethritis presenting a meatus which is not changed in appearance, a moderate to slight amount of discharge, not very much pus in the first urine, and Gram negative diplococci in the pus cells, may be a true gonorrhea, or it may be a urethritis due to the micrococcus catarrhalis. If the case is seen for the first time after the discharge has persisted for some weeks, the clinical picture of gonorrhea does not differ from that of a urethritis due to the micrococcus catarrhalis.

At times the microscopic picture of the micrococcus catarrhalis enables one to make a diagnosis of that infection. A typical smear contains immense numbers of Gram negative diplococci in colonies independent of the pus, and the pus cells are not crowded with germs, as is the case in typical gonorrhea. When such a specimen is found a probable diagnosis of micrococcus catarrhalis infection may be made. The microscopic picture varies from day to day, sometimes showing a perfectly characteristic field and sometimes so closely resembling a gonococcic picture that it is impossible to say from its appearance which germ is present. It must be borne in mind that in the very earliest stages of gonococcic urethritis we find more gonococci outside than inside the pus cells. Gram negative diplococci entirely within the pus cells point strongly to gonococci, but may be the micrococcus catarrhalis. It is said that the micrococcus catarrhalis is more rounded than is the gonococcus.

If we find Gram negative diplococci in the pus cells and culture on nutrient agar shows the typical growth of micrococcus catarrhalis, we may be sure gonococci are absent, and under the same conditions, if we get no growth on nutrient agar, we are certain the germs in the pus are gonococci. But this is not sufficient from a medicolegal standpoint. Microscopic examination of the growth on nutrient agar is necessary in all cases. A culture from a gonorrhea of a few weeks' duration will often show a growth closely resembling that of the micrococcus catarrhalis, but under the microscope it will be found to be a Gram positive diplococcus, staphylococcus, or perhaps a bacillus. Also the microscopic examination must be made as soon as the growth shows on the agar, because an old culture of micrococcus catarrhalis changes from Gram negative to Gram positive.

The disease seems to be directly communicable by intercourse, with an incubation of from three to five days. It also develops, however, without any sexual history. It has a tendency to complete recovery if left alone and quick recovery if blennorrhagics are administered, but if active local treatment is employed inflammation is exaggerated. Under proper care the patient is well in from one to three weeks. Ayres advises the use of santal oil in fairly large doses, under which treatment cure is effected in a few days. If the discharge persist for some weeks local treatment is indicated, his preference being for silver nitrate 1:2000.

This contribution calls attention to a number of facts of vital importance, among which may be mentioned the inadequacy of the ordinary staining methods in making an absolute diagnosis of gonorrhea, the probability that a urethritis exhibiting the symptoms of a mild and short-lived gonor-

rhea may arise independent of actual intercourse, the circumstance that infection by the micrococcus catarrhalis, usually comparatively mild and short-lived, may be severe and complicated, especially if vigorously treated, and the importance of cultural methods where the clinical picture is incomplete. Moreover, there is an explanation offered of the astonishing number of cures reported from treatments which have been proven to be entirely inadequate in case of true gonococcic infection.

REPORTS ON THERAPEUTIC PROGRESS.

TREATMENT OF NOCTURNAL ENURESIS.

In the *American Journal of the Medical Sciences* for February, 1911, RUHRÄH says that among the more interesting of the newer suggestions as to the treatment are the results which have been obtained by Williams. He has publishel two series of cases which he has treated by the use of the desiccated thyroid. McCready has also written upon this subject. Williams obtained wonderfully satisfactory results in all except one case, and it is interesting to note that in this case the child did not have a subnormal temperature. Williams administered one-half grain of the dried thyroid twice daily to children who were between two and six years of age, and this amount may be increased somewhat for older children. The increase in dosage should be made slowly, as directly opposite effects are occasionally induced by overdosage. The results as described by Williams in his own words were exceedingly dramatic.

Ruhräh has had occasion to use this method in a small series of cases, and these were not picked cases, as were evidently those in the series which Williams reports. In a small proportion of cases in which there were more or less marked signs that might be attributed to thyroid insufficiency, the results were quite remarkable. These were all children with adenoids and enlarged tonsils, or in some cases children in whom the adenoids and tonsils had been recently removed. In his series of cases the effect was obtained promptly or not at all. In every instance in which a favorable result was obtained a marked difference was noticed after the administration of one or two doses of the drug, and in all cases within a week.

Another remarkable observation which coincided with the result obtained by Williams is that the undersized children gained weight rapidly. Williams mentions one patient who gained five pounds in a week, and another two pounds and seven ounces within a week. However, most of the patients gained less rapidly.

Another curious thing, which Williams has not mentioned, is that it has not been necessary to continue the thyroid over long periods of time, although in this regard Ruhräh may have been accidentally fortunate and relapse in some cases may probably be looked for.

In several instances in which the children had high, arched palates but no subnormal temperature, the thyroids had no effect whatever.

Of the other methods of treatment with the newer remedies one may mention briefly the following:

Attention has been called to the use of hypnotism in the treatment of nocturnal enuresis by Voisin. He has reported one interesting case, a boy, aged between thirteen and fourteen years. In this patient the urine was sometimes passed without dreams, and at other times was accompanied by dreaming of the act. After several trials, Voisin was able to put the boy into hypnotic sleep, and on the suggestion that he would not dream any more, obtained a disappearance of the incontinence for six days. He was hypnotized again and the same suggestion made, which lasted for three days. He then made an epidural in-

jection of artificial serum on three different occasions, and continued to hypnotize him once a week for a month. The patient has been entirely well for over a year. Voisin raises the question as to what the action of the epidural injection was in this case, whether the therapeutic effect was due to its action on the cauda equina, or whether it acted by suggestion. One is inclined to believe that the latter is the proper explanation. Among the rose-colored statistics are those of Culler, who treated 64 cases with hypnotism and claims to have cured 50 and bettered 10.

Genouville has made an interesting communication to the Association François d'Urologie on a simple device which he has used with considerable success in certain cases. It probably acts as a sort of suggestion without words. He states that the idea of the apparatus is not original with him, but he has forgotten where he saw the mention of it. It consists of placing in the bed of the child under the regiou of the pelvis two metal plaques separated by a piece of flannel or a piece of absorbent cotton. These two metal plaques are connected with wires, each to one pole of a battery and a bell. When the infant urinates the cotton becomes wet, completes the circuit and causes the bell to ring. The infant is awakened and the micturition is stopped, and after being thus awakened several times, the patient is frequently cured. This has only been tried in a comparatively few cases by the inventor. A remarkable thing in connection with it is that most of the cases that were cured were cured very promptly. A modification of the device consists in having the apparatus arranged to give a slight electric shock on the abdomen of the child.

The use of the injection of salt solution has also been suggested. Cathelin has suggested making the injection directly into the spinal canal by means of lumbar puncture, or, in other instances, subcutaneously in the sacral region. Jaboulay has suggested retrorectal injections of 100 to 150 grammes of salt solution, and Cahier has suggested subcutaneously injections into the perineum. He used between 60 and 70 grammes, making the injections 1 or 2 centimeters on either side of the median line. He claims to have had especially good results in the treatment of the adult cases.

Lozano and Forès have used the epidural method with success, injecting the solution into the spinal canal, making the injections low down in the sacral region toward the bottom of the canal. Whether the results obtained by these injection methods are to be attributed purely to the mental effect, or whether they act reflexly, one cannot say. In refractory cases this method might be tried.

Of the old-fashioned means of treating this disease there are one or two things which may be mentioned. The first is to place the child upon a simple non-irritating diet and to restrict the amount of fluid taken, particularly the amount of fluid taken after four or five in the afternoon. Secondly, in some cases raising the foot of the bed so that the irritable neck of the bladder is not quickly affected by the first urine which enters the bladder. Certain cases are improved by a large amount of rest and leading a quiet life. General reflex irritability may be caused by too strenuous a life, particularly long automobile rides and the like. The writer states he has seen on several occasions the simple directions to have the child stay in bed until it is ready to get up in the morning, and to lead a quiet life generally, result in cure.

In hospital practice a large proportion of the cases can be improved by a more or less dry diet and restriction of fluids. Where there is no other indication for treatment he has found the use of atropine to give better results in a greater number of cases than any other one thing in the suggestions made. To be of any service atropine must be given in full doses. In nocturnal cases a dose at five o'clock and at bedtime is all that is required. In cases occurring both during the day and night, the administration of the drug every three hours is to be advised. Ruhräh usually prescribes a solution containing 1 grain of atropine sulphate in 2 ounces of water.

Each drop of this represents approximately 1/1000 of a grain, and ordinarily about as many drops will be required at a dose as the child is years old; but this is not the proper method of ascertaining the dose. Starting with one or two drops, each dose should be increased one drop at a time until flushing of the face and neck occurs some twenty minutes after the administration of the drug. The dose should be diminished one drop, and this amount continued until the child has ceased urinating at night and for at least two weeks later, when the drug may be left off gradually, diminishing a drop at a time until one drop is reached, when it may be stopped.

TREATMENT OF GONORRHEAL CONJUNCTIVITIS IN THE ADULT.

HORSFORD and JAMES, in the *Lancet* of January 13, 1912, write on this subject. They have observed, in common with most ophthalmic surgeons who have given attention to this subject, that gonorrheal conjunctivitis in the adult is in all cases after the age of thirty attended with most disastrous results to the eye. Not only is all useful vision in these unfortunate cases completely lost, but the damaged and shrunken globe not infrequently remains a distressing and unsightly object in the orbit. They believe that this untoward result is not only unnecessary but preventable if the patient is seen early and appropriately treated. The involvement of the cornea constitutes the great danger in this affection.

1. It may slough wholly from strangulation owing to the pressure of the brawny lids and the gelatinous chemotic swelling round its margin.

2. Its epithelium may be readily abraded and a site exposed for the ingress of the terrible gonococcus by even the gentle manipulations of a skilled attendant.

3. The digestive powers of the toxic products contained in the discharge have a most deleterious influence on the vitality of the structures of the cornea.

4. To these must be added what we have come to consider as the almost uniformly pernicious influence of the caustics and astringents applied in the early stages of the disease. The authors refer more particularly to silver nitrate, protargol, argyrol, and perchloride of mercury. These, by the reaction they cause, lead to greater constriction and chemosis, whilst they merely remove the superficial layers, leaving deeper structures of the conjunctiva untouched. Moreover, the removal of these applications is not only distressing and exhausting to the patient, but is attended with positive danger to the cornea. Further, this method of treatment is, even in favorable circumstances, a lengthy one, the conjunctiva being left in an irritable, and occasionally papillomatous, condition for many weeks, while recurring ulcerations of the cornea are much to be feared.

It has always appeared to be evident that this treatment would be justly condemned if adopted by any modern surgeon in urethral gonorrhea, and that it is essentially unscientific and unpractical. For some years Horsford and James have adopted the following method in dealing with these very serious cases, and with the most uniformly gratifying results. The early symptoms of this disease may be recognized, or at least strongly suspected, by the practiced eye even before a culture has been obtained, though this should never be omitted.

1. The patient should at once be placed in bed, and remain there until all danger is past.

2. A low diet should be prescribed, consisting of milk, barley-water, eggs, fish, toast and butter, weak tea, etc., for the first ten days. The bowels should be kept freely open with mercury and saline purges, and aspirin (gr. x thrice daily) and quinine bisulphate (gr. ij thrice daily) are probably the best internal remedies to administer in this disease.

With regard to the all-important question of local treatment, they have found that the constant use of the douche is the primary curative factor. It may be applied either by a mechanical apparatus fastened

to the head or by the hands of a relay of properly instructed nurses. These should sit behind the patient's head and apply the unintermitting stream as the surgeon may direct from time to time. No cessation in the flow is to be permitted for a moment either day or night. The solution which they have found most satisfactory for this purpose is one of permanganate of potash, varying in the early stages from 1 in 15,000 to 1 in 20,000, and in the later stages a solution of boric acid, gr. viij and ʒj, may replace this and is all that is necessary. The temperature should be from 85° to 90° F. in the can, where a thermometer is constantly present. They do not use any ointment either within the conjunctival sac or on the surrounding skin, as it tends to interfere with the proper application of the solution. When possible the patient should be encouraged to open his eyes slightly every ten minutes. No manipulation of the lids except by the surgeon should be permitted.

In the arrangement of the douche the can should be placed not higher than one foot above the patient's head. The end of the fine rubber tube leading from it should be either fixed by plaster or held at the naso-orbital margin, and the stream allowed to trickle constantly across the palpebral fissure, which it will be found that there is a tendency for it to do if properly adjusted. If a slight coating forms along the lashes it can be removed readily by a warm solution of sodii bicarbonatis, gr. x to water ʒj, the lashes being gently stroked downward. For the first four days, provided that the sequelæ to which they refer later do not call for further examination, only the gentlest attempts should be made to expose and inspect the eye. After this time, as the swelling is in all probability subsiding, the cornea should be carefully examined for minute specks, and signs of iritis or hemorrhages into the anterior chamber should be looked for. The patient should be encouraged to open the lids himself, the surgeon merely assisting by the gentlest manipulation of the upper lid. It will be observed in the severer cases that the chemosis in itself tends to keep the lids apart, or at least prevents firm closure, and that the portion thus exposed and submitted to the stream of fluid includes that part of the cornea—*i.e.*, the lower limbus—most susceptible to damage from the toxic inflammatory products.

If the disease is diagnosed in the first days and irrigation is at once adopted a surprising improvement will be seen in the course of the next four days, and the surgeon may be tempted to relax the continuous douche. Relapse is, however, much to be feared if the treatment is not continued for the next three or four days. It may be pointed out also that even in the neglected cases, where the patient is seen by a specialist at a dangerously late stage, eight days' continuous irrigation will be found sufficient to bring the case completely under control, provided the cornea is not affected when the surgeon is called in.

In regard to complications and sequelæ, a malignant form of the disease occurs in which the lids become almost black and show signs of venous stasis and even threatened gangrene. In this condition the outer canthus should be freely incised, and, if necessary, its edges sewn apart. There is no danger of orbital cellulitis ensuing if the continuous douche is persisted with. These cases are, however, rare if the disease has been early recognized and the irrigation treatment adopted.

If the douche is discontinued at too early a stage the authors find that corneal complications are apt to appear as gray spots at the limbus or in the center of the cornea. A renewal of the irrigation has led to rapid arrest of further trouble. Even if a definite ulcer appeared, which they have not seen under this method of treatment, the writers believe it wise to persevere with the douche and not resort to the more heroic measures of the cautery or the silver compounds. A slight vascularity of the upper corneal limbus should not excite apprehension. There is no tendency for ulceration to occur in this situation; it occurs in the center from devitalization, or at the lower part from contact of the secretion, or from exposure. They have not found it

necessary to make radiating incisions into the chemosed tissue since adopting this method of treatment. The subsidence of the chemosis has mostly ceased, by painting the conjunctiva of the lower lid only with gr. ij ad ℥j of silver nitrate, or the use of permanganate of zinc drops, gr. ⅛ ad ℥j. The globe and upper lid should not be touched by these astringents. The eyeball is always tender on the slightest pressure during the first fortnight, and the eye is hypersensitive to light even through the lids. There is, however, but little true tendency to iritis at this stage under this treatment, but it is their practice to instil atropine solution every other day, gr. ij to water ℥j, after the eighth day for the general comfort of the patient. They have not found as sequelæ after this method of treatment papillary roughness of the conjunctiva, obliteration of the fornices, etc.—results by no means uncommon after the astringent and caustic methods of treatment usually adopted. Neither have they encountered such terrible results as orbital cellulitis, meningitis, etc.

It must be remembered that however well the eye may have recovered in certain cases, the patient may suffer at a later stage from rheumatic troubles affecting the periarticular tissues and serous membranes. These occur chiefly in the urethral cases at about the fourth week, when the patient is up and about, and scleritis may supervene at this period and ultimately cause staphylomata. They have, however, never met with this complication after the irrigation method. They point to the importance of carrying out suitable treatment for the urethral complications, to warm clothing and careful dieting, and the avoidance of anything which may expose the patient to cold and damp. Abstention from alcohol and tobacco and a diet consisting chiefly of milk and farinaceous food are indicated until the patient has completely recovered.

In the early stage the patient will naturally suffer somewhat from insomnia, owing to the want of rest which this treatment involves, but this should not prevent the surgeon from persisting with the douche, the issue being so vital. It is most important that the stream should trickle uninterruptedly and not fall by drops upon the eye, for it is then apt to produce a peculiar mental irritability. Veronal, gr. viij, in tea can be given at night, but a fair amount of rest is really obtained. The light of the room should be subdued, and the sound eye protected by a Buller's shield well aerated above and below, which should not be removed unless absolutely necessary. The nurses should wear protecting gloves of india-rubber. All swabs should be destroyed by burning. The fluid is collected by means of towels and mackintoshes, the towels being boiled, dried at the room fire, and used again. The room should be well aired and kept at a temperature of 65° F. The risk of infection to the attendants should be pointed out.

With regard to vaccine therapy the writers have not satisfied themselves of its accuracy, but believe that the use of antistreptococcic serum by the rectum is of service in the rheumatic complications which may arise.

THE TREATMENT OF ECZEMA RUBRUM OF THE LOWER EXTREMITIES.

BECHET writing in the *New York Medical Record* of March 16, 1912, asserts that the most important single factor in the local treatment of eczema rubrum of the legs is undoubtedly the solid rubber bandage, as introduced and advocated by Dr. L. Duncan Bulkley. Bechet asserts he has observed truly splendid results achieved by its use, both in Bulkley's and his own practice and in his clinics. The bandage is made of very thin rubber, capable of a great degree of stretching. It is about three inches wide and about five yards long; should it be necessary to carry it to the thigh, a longer bandage is required. The method of applying the bandage is simple. No matter how small the area of eruption, it is best to apply it from the toes to the knee, overlapping it about one-third of its width. The bandage should never be reversed, the heel must be left free. With only a slight

amount of care, an even amount of pressure can be maintained and the comfort of the bandage elicited by having the patient stand and walk about. If at any time it proves uncomfortable it should be removed and readjusted. The bandage is not to be applied directly to the diseased parts. Bechet uses pieces of ordinary surgical lint, cut so that the borders just meet together, surrounding the leg with one thickness of cloth without overlapping. The woolly side of the lint is then covered thickly with the salve to be used and applied snugly to the diseased area. The rubber bandage is then applied. At night the bandage and dressings are removed, preferably after the patient is entirely ready for bed. The rubber bandage is washed in a diluted solution of phenol (one drachm to a pint) drawn through a dry towel, draped over the back of a chair, and left to dry over night. The leg, with the accumulated secretions of the day, should be washed off with some weak antiseptic solution, preferably phenol, because of its marked antipruritic properties. A large piece of cotton should be used as a sponge. The leg is then gently dried with absorbent cotton, causing as little irritation as possible. An astringent cooling lotion is then applied, twice, at a fifteen-minute interval, in order to allow the first application time to dry before the second is put on. If during the night there should be any itching, a piece of cloth wet with the lotion should be applied. In the morning, before arising, the leg is dressed and the rubber bandage applied as previously described. Should any dressings be used during the night, and these are adherent, they should not be forcibly torn off, but should first be moistened with a little olive oil. If this is done they can be removed without force.

The advisability of using the rubber bandage in the very acute stages is questioned by some, yet Bechet has used it time and again in his clinic with nothing but good results. The exudation of serum is controlled in a remarkably short time. There is no difficulty in training patients to use the bandage rightly; with a little patience and several demonstrations, they will carry out all details minutely. The benefit derived from the use of the bandage is a further incentive to obey instructions.

THE PRINCIPLES OF TREATMENT IN EXOPHTHALMIC GOITRE.

The *Lancet* of February 24, 1912, contains an article by MURRAY on this topic. He thinks that in the present state of our knowledge the objects we have in view in the treatment of Graves's disease are either to remove the source of the autointoxication or to counteract its ill effects. The principles of treatment are therefore comparable to those which guide us in the treatment of a disease which is due to a local microbic infection, giving rise to a general toxemia, but more difficult to carry into practice.

In some cases we know that, either as the result of treatment or in the natural course of the disease, the hyperactivity of the thyroid gland gradually diminishes, the symptoms subside, and the patient recovers more or less completely. According to Murray's experience this may take any period from nine months up to seven or more years, from the commencement of the disease. In some chronic cases a certain amount of tolerance gradually becomes established, so that the patient is hardly aware that the disease is still present. Recovery in these cases is the result of an involution of the enlarged gland, due to an atrophy of the redundant epithelium. This atrophy may be either primary in origin or secondary to the development of a gradual fibrosis of the gland, which may even proceed to partial or possible total destruction of the glandular epithelium, as in a case Murray reports having recently seen in which the symptoms of Graves's disease were replaced within a few months by those of myxedema. We are greatly in need of more exact information as to the conditions under which those involuntary changes take place. If we possessed this knowledge we should be in a better position to bring this natural process of cure into operation.

Murray briefly reviews the methods which may be adopted to reduce the morbid

activity of the thyroid gland to a normal level or to counteract its ill effects, reserving the consideration of surgical measures to the last.

General treatment by means of mental and bodily rest combined with a liberal diet, of which milk forms a large proportion, tends to diminish thyroidal activity. Excess of proteid food should be avoided, as Dr. Chalmers Watson's experiments show that the structure of the thyroid gland may be modified by diet. The work of Ehrlich and Wassermann opens up the possibility of efficient remedies being obtained in the future, which may have a direct and selective action on the hypertrophied gland. It is not unlikely that arsenic and belladonna, which are of proved utility, act in this way and tend to depress the activity of the secretory cells, just as iodine, on the other hand, exalts it and aggravates the symptoms. With the same object in view attempts have been made to prepare a specific cytolytic serum which would induce destructive changes in the epithelium of the gland without injury to cells in other parts of the body. Unfortunately such preparations are not really specific in action, and if used in adequate amounts they produce degenerative changes in other organs as well, and consequently may do more harm than good. *X*-rays have been employed in order to diminish the gland.

In one of Murray's cases which was under treatment at the Manchester Royal Infirmary, 11 doses of *x*-rays were given between November 28, 1911, and January 5, 1912, by Mr. A. E. Barclay. On January 9 the right lobe of the gland was removed because one night the patient had a severe attack of dyspnea with loss of consciousness for ten minutes. Microscopical examination of sections prepared by Dr. W. Mair from the portion removed shows there is a diffuse interalveolar fibrosis which, in places at any rate, appears to be of recent origin and to be the result of the action of the *x*-rays. At the time of the operation Mr. A. H. Burgess found the capsule of the gland was unusually adherent to the trachea and surrounding parts. These adhesions were probably also a result of the use of the *x*-rays.

Although in this case no beneficial result was obtained by *x*-ray treatment, the microscopical changes suggest that a more prolonged course of treatment might in time bring about the desired result. The application of a mild faradic current to the goitre for two or three hours each day possibly acts directly on the activity of the gland, as in many cases it is a useful mode of treatment.

We may endeavor to counteract the ill-effects produced by the excess of secretion in the blood stream. For this purpose the milk, dried blood, and blood serum of thyroidless animals, especially of sheep and goats, may be employed on the supposition that the products contain some substance which acts as an antidote and neutralizes the action of the excess of thyroid secretion in the blood. In many cases we have to resort to purely symptomatic treatment under special circumstances so as to deal with the special crises which arise from time to time in Graves's disease, when special measures may be applied to relieve cardiac, intestinal, bronchial, cutaneous, or nervous crises giving rise respectively to severe palpitation, diarrhea, bronchorrhea, sweating, and the like.

Finally, Murray briefly mentions some points in connection with surgical treatment. As the first object we have in view is to reduce the hyperacidity of the thyroid gland, it naturally occurred to many that this could be most successfully achieved by surgical methods. This view appealed rather strongly to Murray when the pathology of Graves's disease first became understood, but very quickly the hazardous nature of the proceeding became apparent. The first three of his cases in which one lobe of the thyroid gland was excised—in each case by a different surgeon—all died almost immediately after the operation. After this experience he was very reluctant for long to advise any patient to undergo operation, and consequently his personal experience of surgical treatment is limited.

Two methods of surgical treatment are chiefly employed at the present time—ligature of one or more of the thyroid arteries and partial thyroidectomy. On referring to the notes of 300 of the cases he has seen, 276 of which were women and 24 men, Murray finds that as far as he knows only 10 have been operated on. In one case both superior thyroid arteries were ligatured, and in nine partial thyroidectomy was performed. In the first three cases, which were all women, death occurred shortly after the operation. The other seven recovered from the operation, so that of the cases Murray has seen in which an operation was performed the mortality has been 30 per cent. Two of these seven were men and five were women.

In one man who had suffered for nine years from severe Graves's disease, both superior thyroid arteries were ligatured by Mr. R. Morison in June, 1907, under general anesthesia, four and a half years ago. Marked improvement has taken place, so that he can now cycle to and from his place of business and do an ordinary day's work, but he is not cured. In the second man, whom Murray saw in 1909 just before he started for Canada, partial thyroidectomy was performed by Mr. Roberts, of Toronto, in May, 1911, and when he saw him the following September he was quite well and completely cured of the Graves's disease.

Of the five cases in women, in one—that of a single woman, aged thirty-two, in whom there had been a goitre for twelve years, with more recent development of secondary Graves's disease—the right lobe was excised by Mr. W. G. Richardson in June, 1907, because she complained of so much pain in it and was anxious to have it removed. The only anesthetic used was chloroform given through the Harcourt inhaler. At the time the heart was considerably dilated and the pulse 144. She recovered, and her medical adviser informed Murray that she is now quite well.

In conclusion, Murray advocates operation in all cases in which there is distinct stridor from compression of the trachea or persistent pain in the goitre. In cases of a mild type he does not consider an operation is necessary. In very severe cases with marked cardiac failure the risk is too great. In a certain number of cases of moderate severity in which no adequate improvement has resulted from medical treatment fully tried for twelve months, a partial thyroidectomy or ligature of the superior thyroid arteries may be advised. The remarkably small mortality from the operation obtained by Sir Victor Horsley, Dr. T. P. Dunhill, Professor Kocher, and others clearly indicates that the grave dangers which formerly made physicians unwilling to advise operation have now been considerably reduced, so that operation can be recommended in a larger number of cases than previously appeared to be advisable.

The chief points upon which we hope to obtain further information by this discussion are the exact indications for operation, the average risk, and the results. In considering the latter and in comparing them with those obtained by other methods of treatment Murray emphasizes the fact that the prognosis usually given in text-books is too pessimistic, as a very considerable number of cases do either completely or partially recover without operation.

THE PRESENT POSITION OF SALVARSAN.

The *Lancet* of March 2, 1912, gives the following editorial review of this subject:

On the first introduction of a new drug it is by no means easy to express a decided opinion as to its merits, especially when the disease for which it is employed is liable to reappear many months and years after apparently it has been cured. Of all diseases with which we are acquainted syphilis is probably the one about which it is most difficult to be certain that a permanent cure has been effected; for after intervals which may often be measured by years some manifestation may appear showing clearly that the virus has been latent in the body during the lengthy interval. Therefore when a new remedy is brought forward as

more capable of effecting a complete and permanent cure of syphilis than was possible or at least easy by any other method, it is only natural that some of those who had many years' experience in the treatment of the disease should look askance at a remedy for which so great a claim was made; for by means of mercury judiciously, perseveringly, and thoroughly administered results of the very greatest value have been obtained. It is difficult to forsake a tried remedy for a new drug. Now sufficient time has elapsed since the introduction of salvarsan for us to form some idea as to its value and its risks; it is, however, not yet possible to make any dogmatic statement as to the position which the remedy will hold in the future—whether in, say, ten years' time it will be widely used or whether it will have lost much of its present popularity. That salvarsan has a great power against treponema pallidum is beyond dispute, but the occurrence of a number of fatal cases has shown that it is by no means free from danger; we are, perhaps, in a position to inquire whether these deaths are a necessary accompaniment of the administration of the drug, or whether they, or most of them, might have been avoided by greater attention to the method and details of administration.

It must not be forgotten that salvarsan was not a natural substance employed empirically, but a substance obtained as the result of a long series of experiments conducted on the most modern scientific lines. The problem which Ehrlich set himself was to find a substance which should prove inimical to the treponema, while at the same time it should damage to the least possible extent the normal tissues of the body. His object was to obtain a substance which could destroy completely all the organisms of the disease with one injection, and yet should not harm the host. Whether salvarsan is capable of effecting this cannot yet be said to be proved, but it is at least certain that it has a very great influence on the treponema and that the manifestations of the disease respond as a rule very readily to it. The amount of evidence both as to the merits and the risks of the drug is now voluminous, and a reference to the indexes of the *Lancet* for last year will show that it has devoted a large space to papers on this subject, and this has been done because it has felt the great importance of the matter. For a final judgment we must wait for some years, but it is at least possible at present from the materials in our possession to express an opinion on the value and risks of the drug.

All those who have had much experience in the use of salvarsan are agreed that it is capable of causing the rapid disappearance of syphilitic manifestations; it is true that some lesions seem to be more amenable to its influence than others, but in nearly all cases the action is rapid and effective. In fact, most observers are of the opinion that it is more rapid and more effective than is the action of its main competitor, mercury. It is true that there are some clinicians who decline to acknowledge that the efficacy of the drug is great, but they are comparatively few in number. The point of the controversy now is the question of the risk attendant on the use of the drug. At first the risk was said to be very small, but at that time it was employed by but a few surgeons, and it was administered with the greatest care, while since the use of salvarsan has spread widely it has been employed much more freely; and it must not be forgotten that the dose has been increased, while in many cases it has been thought necessary to administer a second dose.

That the drug can cause death is certain, and by now a large number of fatal cases have been published. In some of the earlier deaths the fatal results appeared to be due in part at least to the fact that the drug had been administered to patients who were almost moribund, but that explanation cannot be allowed in most of the more recent deaths. In the last issue of the *Lancet* a letter was published in which were collected together a large number of recently reported fatal cases after the injection of salvarsan, and the list is sufficient to make us consider with great care the risks of the drug. As to some of the cases it is possible to sug-

gest the cause of the fatal result. It appears that in two of the cases mentioned the full dose of 0.6 gramme was repeated after a very brief interval; in one case the interval was only three days, and in the other it was a week. Now it has not yet been shown that there is any anaphylaxis with salvarsan, but whether there be or not, it is, to say the least, very unwise to inject so large a quantity of the drug as 1.2 grammes within three days or even a week. It may be answered that it has been done with impunity, but such a dose is extremely large, and the fatal result is not strange. This is pointed out in the columns of the *Lancet* of this issue by Dr. G. S. Stopford-Taylor and Dr. R. W. Mackenna. It may be necessary to repeat the dose in some cases, but it is certainly advisable that an interval of greater length than a week should be allowed to elapse between the two injections. In some of the fatal cases in which oniy a single dose had been given the symptoms had pointed to the presence of a meningitis, and they had arisen within a few days of the injection, and in others nephritis had occurred. These are evidently the direct effects of the drug.

It is of interest in such fatalities to know whether the solution was filtered before it was injected intravenously, for it is easy to see that minute solid particles of the drug might have a harmful effect that would not be produced by a solution. It is very desirable that in reports of cases in which severe symptoms or a fatal result have occurred the fullest particulars should be given of the mode of administration, especially as so many different methods are now employed. There is a further point that is worthy of consideration, and that is the relative frequency of fatalities. By now the drug has probably been given in one way or another in more than 100,000 cases, but we have no evidence as to the proportion of fatal results, though a few surgeons have published the statistics of their own cases.

The present position of the matter is that salvarsan has been proved to be a powerful antisyphilitic agent, that in a large proportion of the cases in which it has been given it has produced no harmful symptoms, but that in a small number of cases severe symptoms have appeared, and in some cases a fatal result has followed. There is evidence to show that in some of these fatal cases at least the death has been due to the too early repetition of the dose, and in other cases probably some error in the mode of administration had been committed. It is clear that the drug has a very definite value, but it is equally clear that its administration needs the greatest care. It is not improbable that a certain amount of selection of cases will be necessary if the best results are to be obtained, but at present it is hardly possible to say what cases should be excluded from the treatment, though there is some reason to think that nephritis is a contraindication to the administration.

PITUITRIN IN OBSTETRIC PRACTICE.

The *Journal of the American Medical Association* of May 18, 1912, quotes from an article on this subject in the *Hospitalstidende* of Copenhagen of April 3, 1912, entitled "Pituitrin som Ekbolikum:"

The therapeutic value of pituitrin is discussed by Hauch and Meyer on the basis of considerable personal experience as well as recent literature on the subject. They did not observe any unfavorable by-effects except that there was a slight transient infiltration around the point of injection in one case. Two or the women and four of the children died in Meyer's thirty-six cases, but he states that these deaths have scarcely any connection with the injections, although there is a possibility in one case that the increase in the blood-pressure after the injection may have coöperated in bringing on the eclampsia, the first symptoms of which appeared an hour and a half after the injection. The woman was delivered at once, but died five hours later. She had kyphoscoliosis and nephritis.

The case warns us, however, to be cautious with a patient showing a tense pulse or any signs of impending eclampsia. The

extract seems to be generally effectual in inducing contractions of the uterus at term and expulsion of the fetus, and it may render forceps delivery unnecessary. Its action before term is uncertain. Hauch declares that the extract may permit a more active management of birth in some cases, while in others it will permit expectant treatment to be carried to greater lengths, knowing that we now have this effectual oxytocic to fall back on at need. He obtained such good results with it in four cases of partial placenta previa that he thinks it may prove of great assistance in such cases, as it aids in arresting the tendency to hemorrhage.

Brammer reports his experience with it in twelve cases, of which he gives the details. He says that when all goes well the obstetrician feels that his dreams are being realized, but that the action of the extract is irregular, and it may induce such violent contractions as to endanger the fetus. Nausea and vomiting were observed in one case five hours after the injection. The contractions may become so violent that a little chloroform may be needed. These and other reasons confirm the necessity of the physician remaining with the patient for at least an hour afterward. The only contraindications seem to be an abnormally high blood-pressure from arteriosclerosis or nephritis, and possibly a tendency to nervousness or hysteria, as these may magnify the influence on the uterus and lead to too violent contractions.

THE USE OF INTESTINAL ANTISEPTICS IN CHILDHOOD.

HAND writing in the *Archives of Pediatrics* for February, 1912, states that it is still a debatable question whether bacteria normally present in the intestinal tract can, under certain conditions, give rise to inflammation, or whether all cases of enteritis do not belong to the ectogenous group of Escherich, the germs being introduced from without. Three main groups of pathogenic germs have been described in the great disorder of infancy and early childhood, ileocolitis—the streptococcus of Escherich, the colon bacillus, and the dysentery bacillus of Shiga-Kruse and Flexner. The colon bacillus is, of course, a normal inhabitant of the intestinal tract, but bacteriologists claim that the one normally present in any given case is of a different strain from the one causing trouble, the latter probably having been introduced from without, so that as the pathogenic one is overcome the normal one returns. The separation of these cases of ileocolitis bacteriologically is only possible through the services of a skilled bacteriologist and a well-equipped laboratory. Clinically, such distinction cannot be made, and for purposes of treatment such distinction is not necessary, as the same fundamental principles underlie all the groups.

The writer says we must consider the patient first of all and do him no harm, while we have the absolutely necessary aim of ridding the intestine of the invading, hostile germs. It is always better to keep the peace than to fight for it, so Hand digresses for a moment to mention the prevention of enteritis by avoiding the introduction of these disease germs; and as most of them gain entrance in the company of milk, clean milk is a necessity. But as we cannot tell when human fallibility will break into the most carefully guarded plan of milk production, distribution, and consumption, it is always safer, for at least nine months of the year in this climate, to pasteurize the milk taken by infants and children. When, in spite of the best of care, the intestinal tract is invaded by disease-producing germs, the first symptom of any trouble is an indication to sweep the invading army out at once before it can effect a foothold; and the initial dose of castor oil, salts, or calomel acts mainly as a dislodger rather than a disinfectant. Unfortunately, the few golden moments when this is possible too often slip by with nothing done, and the germs become securely entrenched in the intestinal mucosa. It has been established by clinical observation that putrefaction favors the action of these germs, and we therefore have a fundamental principle of treatment in the with-

drawal of milk and all foods which must be ultimately broken down by putrefaction. Milk and all milk foods, such as condensed milk, whey, or any of the dried malted milks, must be absolutely forbidden until the discharges have lost all evidences of blood and greenish mucus. All remains of milk in the alimentary tract must also be removed by purgation, as mentioned above, colonic irrigation being also valuable. Just as in human warfare hunger is a potent ally in reducing to submission a beleaguered city, so in ileocolitis the battle is half won if we prevent the disease germs from receiving means for their sustenance; for if milk is withheld for twenty-four hours or longer if necessary (and it usually is) most of the germs will probably die, this being a disinfecting measure of great power.

The patient is now in the stage when the use of intestinal antiseptics (or disinfectants) may be considered. Is it possible to hasten the death of the germs by the use of drugs? Hand believes that it is, but here we have a two-edged sword that must be used cautiously. Some of the intestinal antiseptics are theoretically powerful, but are too irritating to the mucosa to be used in a dose large enough to have any value. He looks on thymol, the naphthol derivatives, and phenyl salicylate, or salol, as in this class. Bismuth salicylate he has found objectionable from this point of view, and a comparison of two series of cases, one treated solely by the starvation plan and one treated with bismuth salicylate, showed such a decided difference in favor of the drug that it seemed to have undoubted disinfectant properties, which Steele's careful investigations proved mathematically. Besides the direct disinfectant action of the salicylic radical there is also obtained the sedative action of bismuth itself, which may also be enhanced by giving the subnitrate or the subcarbonate at the same time. This sedative property may also be said to have an indirect disinfectant action, such as may be attributed to decoctions of the carbohydrates, like barley-water or rice-water. As already stated, these favor fermentation by the saccharolytic germs, which seem clinically to aid in shortening the inflammatory period so positively as to possess antagonistic action on the pathogenic germs.

Hand sounds one word of warning as to the use of calomel in these cases. He uses it rarely because of its possibilities for harm, and the more he sees of its use by his colleagues, he asserts, the more disinclined he is to use it. Certainly the sickest infants he saw last summer with enteritis had had in the preceding twenty-four hours a grain of calomel in divided doses. In much smaller doses, one-twenty-fourth of a grain every three hours for four or five doses, it may be of service, but it is a much slower evacuant than oil, rhubarb, or magnesia (the citrate or sulphate). And if its antiseptic action depends on its conversion into the bichloride, then, as Dr. Wood has pointed out, to have any value it must be present in such amount as would seem to be irritant if not positively toxic.

THE CAUSES AND TREATMENT OF HIGH BLOOD-PRESSURE.

Under this title BAIN in the *Proceedings of the Royal Society of Medicine* for February, 1912, tells us that in treating cases of high blood-pressure he generally adopts the following plan: If the systolic pressure is about 200 he usually prescribes nitroglycerin or erythrol tetranitrate for a few days, puts the patient on a restricted protein diet, advises strong sulphur water daily, and gives him one of the following baths: Aix douche (without abdominal massage or needle douche), Nauheim, liver packs, modified Turkish, electric light bath, D'Arsonval, or a strong sulphur bath. Massage of the back and extremities is helpful, and a moderate amount of outdoor exercise very desirable. The reason why in starting treatment he frequently gives nitrites is because there is generally an initial rise of pressure attending bathing operations, either from apprehension or heat, which might prove dangerous. There are certain patients who cannot take nitrites on account of the splitting headaches they produce. When the nitrites disagree he uses hippu-

rate of ammonia, puts the patient on a vegetable diet, and delays bathing for a week. The sulphur water clears out the alimentary tract daily, and is an intestinal disinfectant. Unquestionably the most important part of the treatment is restriction of the diet on the lines indicated. It is necessary to impress upon the patients that they must adhere strictly to the diet sketched out for them until their blood-pressure comes down to normal. A vegetable and fruit diet can be made fairly palatable.

While most practitioners recommend Aix douches as agents for lowering blood-pressure, Bain asserts he has not seen liver packs suggested for this purpose. Yet in certain cases in which the hepatic dulness was slightly increased the packs have had a distinctly beneficial effect. This leads him to the statement that each case should be treated on its merits. Nauheim baths, like the Aix douche, facilitate the peripheral circulation, thereby relieving the embarrassed ventricle, and this effect is secured with a lower temperature than in most other baths. What is meant by a modified Turkish bath is that the patient alternately sits in the Russian room and the first hot room, spending a couple of minutes at a time in the former and ten minutes in the latter. Consequently he is not subjected to a higher temperature than 130° F.

Many practitioners condemn the use of alcohol and tobacco in cases of high blood-pressure. It is a hardship to be deprived of nearly everything that makes life worth living. Providing patients carry out dietetic instructions, Bain believes, if they desire it, they might be allowed to enjoy alcohol and the fragrant weed occasionally.

In the earlier stages of arteriosclerosis he believes the iodides have a beneficial effect in promoting the absorption of effused material, and in relieving spasm of the smaller vessels, but it is a difficult matter to decide when the arterioles are beginning to become hypertrophied. It is wiser to err on the safe side and give iodides when there is the least suspicion of a pathological change in these vessels. It must be remembered that in administering the iodides we are not attempting to remove the cause of the high blood-pressure. We are merely treating a consequential sequela of hypertension. The iodides do not promote the excretion of the toxic products which produce the vascular changes. When such a drug is discovered the treatment of high blood-pressure will be simplified.

HOW TO USE QUININE AND UREA HYDROCHLORIDE; ESPECIALLY FOR SYSTEMIC EFFECT BY INJECTION IN MALARIA AND PNEUMONIA.

COHEN in the *Medical Times* for March, 1912, reminds us that quinine and urea hydrochloride—long known in Germany as chininum bimuriaticum carbamidatum, and used with confidence by some American physicians, most of whom learned of it a generation ago from Professor Roberts Bartholow, or more recently from his pupils—has within a few years come into prominence as a local anesthetic. Of its use as such, Cohen does not discuss, except to call attention to its great value in acute tonsillitis and in tuberculosis of the larynx. A solution of 1:10 or less is usually strong enough, but even a 20- to 50-per-cent solution may be employed if necessary. It can be applied by spray, sponge, brush, cotton applicator, etc., as may be most feasible in the individual instance. Sometimes the patient may simply take a teaspoonful or two of the solution in his mouth, and holding it back toward the painful region of the tonsils or epiglottis, move it gently to and fro by action of the pharyngeal muscles. This is somewhat easier than gargling, and gives more relief. Done ten minutes before the taking of food, it will sometimes permit nourishment to be given in cases of ulceration of the epiglottis or other painful tuberculous lesion in which all other methods of relief have proved unavailing.

Neither in tuberculosis nor in tonsillitis need the patient be apprehensive of any danger from swallowing the solution, as a dose of 5 grains or so, three times a day, would not ordinarily be hurtful, and in

febrile cases might be beneficial. Sometimes, indeed, the specific direction to swallow a part of the solution—or even all of it—is given.

It is, however, more particularly with the systemic effect of the drug, and its administration in malaria and in pneumonia, that this note deals. Cohen has received many inquiries concerning particular details of the method of administration employed by him in the treatment of acute lobar pneumonia and acute lobular pneumonia by massive doses of quinine and urea hydrochloride—the favorable influence of which he reported some months ago to the Association of American Physicians (*American Journal of the Medical Sciences*, January, 1912)—and this is the easiest method of answering at once all his correspondents.

The drug may, of course, be given by the mouth in solution, powder, or capsule, as any other salt of the cinchona alkaloid. It is probably more active, grain for grain, than any other quinine preparation. Possibly the urea is a linking body; possibly it is merely a question of solubility. Cohen asserts he does not know the explanation, but the fact is evident.

The peculiar advantage of the urea compound over the other quinine salts, however, is its availability for hypodermic and intramuscular injections; possibly for intravenous injection also, although he has never found the latter method necessary, and thus has no experience to report. A possible danger is injury to the vessel wall.

The superiority of the carbamide for injections is owing to its high solubility. It will dissolve in its own weight of water, especially hot water, and an ordinary syringeful may thus contain from 15 to 18 grains (1 to 1.2 gm.) if necessary. The preferable solution is 50 per cent, and the ordinary dose is 1 gm. (15 grains) in 2 Cc. of water.

In malaria of the types ordinarily seen in northern latitudes, a single injection of this strength will cause suspension of the paroxysms for from a week to a fortnight (6½ to 13½ days). One injection daily for a week suffices to bring about complete recovery in the ordinary case. After this, to make sure against chronic infection or sequels, the drug should be continued in doses of 10 grains, in capsule by the mouth, daily, for another week; and then administered once a week, in the same way, for two or three months.

NITROUS OXIDE-OXYGEN ANESTHESIA.

The *Journal of the Michigan State Medical Society* for March, 1912, contains an article by SMITH and MAURITZ on this subject. They state that nitrous oxide-oxygen, after several years' trial in a number of surgical clinics in this country, has been adopted as an advantageous form of anesthesia. In no instance of which they are aware has it entirely replaced ether and chloroform; nor, on the other hand, has it often been given up after a fair trial, though the indications for its use seem to vary considerably with different men. That it is still used, after mature consideration, by a number of our best surgeons would seem to indicate that it possesses real advantages. We may also assume that it has certain disadvantages that in critical minds have led to the adoption of a number of restrictions.

The object of this paper is to present the results of their experience in the 410 cases (132 of which were laparotomies) in which it has been employed; to give their statistics, impressions, and methods; and to suggest its trial to those who can obtain a proper person to administer it. They believe that the expert anesthetist is really the key to the situation, and that surgeons who are dependent on inexperienced, uninterested men had better wait until such can be obtained. Close study and experience are necessary to obtain satisfaction. Had they been governed by the result of their first ten or twenty cases, they would have discontinued its use. They assert they were made uneasy by the cyanosis and occasional check in respiration and annoyed by the rigidity and struggling. With further use and with better ideas as to what patients should or should not receive it, it

has grown in favor with the authors, and at present they are employing it in something over half of their operations. They have, they believe, fully recognized the disadvantages noted by others. After all, the only one worthy of serious consideration is the rigidity which may so embarrass the surgeon as to more than offset the advantages of lessened toxic effects, nausea, depression, and discomfort. The cost of the gas is of no great moment. In 388 cases it has averaged $3.40 per hour—surely but very little when we consider the total cost of operative work. Excessive bleeding has been spoken of by others; the authors have had no trouble on this account.

The still rather prevalent idea that the anesthetic is adapted only for short operations is, of course, without foundation, and probably arises from the use of nitrous oxide by dentists for teeth extraction. The oxygen in addition gives us a very different agent. In one case they used it for three hours, and Dr. Mauritz, in another, administered it for three hours and thirty minutes. One and a half to two hours in difficult surgical cases is a common occurrence with them. They have used it for long and short operations, since in the latter the bad effects of ether are not so great.

ATROPINE AND OPEN ETHER ADMINISTRATION.

GARDNER in the *British Medical Journal* of February 24, 1912, gives the following advice as to the technique:

1. One hour before the administration of ether a hypodermic injection of atropine sulphate 1-150 grain is given with the object of preventing the considerable secretion of mucus in the air-passages which may be otherwise caused by ether. This also prevents sweating during the operation, and thereby retains the body heat. Atropine is also a respiratory stimulant and a vagal obtundent, both valuable qualities unhampered by contraindications. Morphine is not advantageous for routine employment, because it appears to induce oozing of blood from the wound during operation, and certainly retards the reappearance of the laryngeal reflex and the resumption of consciousness during recovery.

2. When the patient is in position for the ether administration a small mouth-prop is inserted between the side teeth and held in position by light pressure upward upon the lower jaw with the administrator's left hand.

3. A ring pad made of gauze is then rested on the patient's face encircling the nose and mouth.

4. The wire mask, fitted with a pad made of sixteen layers of gauze, is now laid upon the ring pad, and the patient instructed to breathe in and out slowly through the mouth.

5. The administrator now talks quietly to the patient all the time, while he drops ether continuously upon the mask until unconsciousness supervenes.

6. The mouth is then opened wider with a jaw gag, a tongue clip with finger loop is inserted, and the tongue drawn slightly forward away from the pharynx.

The mouth-prop is then readjusted, leaving the mouth partly open as at first. The ring pad and mask are then replaced and the ether drops continued.

By means of this procedure all further anxiety as to the patency of the airways is removed, and labored respiration entirely avoided.

The practical advantages may be shortly summed up under the following headings:

1. A smooth induction period of six to eight minutes.

2. Very early clouding of the mental faculties.

3. Tranquil regular respiration with abdominal relaxation.

4. Absence of mucus in the air-passages.

5. No unusual oozing of blood from the wound.

6. Extraordinary safety, alterations in the patient's position or disturbances of vital structures producing barely any depression.

7. Maintenance of normal blood-pressure and absence of shock owing to the obtundent effects of both atropine and ether.

8. Suitability for goitre operations and adenoids and tonsil extirpation.

9. The patient may be safely propped upright on pillows on return to bed.

10. No after-effects, vomiting being quite rare.

11. Acidosis improbable.

12. Unusual value therefore in septic conditions and those with flagging circulation.

After four years' employment of open ether administration, in contrast with thirteen years' previous use of other methods, Gardner cannot refrain from strongly urging its general acceptance as a substitute for chloroform and mixtures in all routine surgical work on account of its extreme simplicity, safety, and convenience for the operator, administrator, and patient.

TOXEMIA OF PREGNANCY.

BLACKMAN tells us in the *New Orleans Medical and Surgical Journal* for March, 1912, that nearly all the symptoms incident to pregnancy from simple morning sickness to pernicious vomiting, and eclampsia, are only varying degrees of toxemia.

This toxemia is due to suboxidation or unoxidized substances, principally of the nitrogenous derivatives, in the circulation.

Urea and uric acid are harmless end products which can be eliminated as such without trouble, but it is only when the nitrogenous particle is incompletely oxidized, leaving bodies such as xanthin, hypoxanthin, ammonia, creatin, etc., that toxemia begins.

Both the urinary and autopsy findings show that the toxemia of pregnancy is the same condition as autointoxication of the non-pregnant individual.

The pregnant woman is more prone to this autotoxemia because of the increased catabolic activity, more sedentary habits, and because of the increased demands for oxidation on account of the fetus.

Oxidation is brought about, governed and controlled by the adrenal system, and the thyroid secretes a fluid which stimulates the adrenal activity, thereby increasing oxidation, as witness the physiological enlargement of the thyroid, in normal pregnancies, to meet the demands made on it for increased oxidation, and, as shown by Charles Mayo, when this enlargement does not occur the woman is in danger of eclampsia.

"The internal secretion of the adrenal is the constituent of the hemoglobin molecule, which carries oxygen to the tissues," and in cases of suboxidation or adrenal insufficiency, any amelioration of the condition and a cessation of symptoms, or an increased adrenal activity, can be and is brought about by administering thyroid extract.

Veratrum viride is the very best remedy we have in eclampsia for lessening the irritability of the vasomotor center, lowering vascular tension, and relieving the attack. Chloroform is not safe on account of its liability to produce degenerative changes in the liver, and morphine is only an artificial remedy, which should never be used when there is any kidney disease or diuresis is not free. Chloral and the bromides, when used in large doses to control convulsions, act similarly to, but are not as desirable as, veratrum.

Combined with the above, elimination and lessened proteid ingesta are the only rational methods of combating this toxemia.

Physiological saline solution, preceded by venesection in suitable cases, is one of the safest as well as the surest means of preventing eclampsia during the pre-eclamptic period, as well as controlling and relieving the seizure.

It is the duty of the physician, in every case of pregnancy in which he expects to act as accoucheur, to inform the patient of some of the dangers incident to pregnancy; to give her full and minute instructions in regard to her diet, exercise, elimination, etc.; also to examine a 24-hour specimen of urine every four weeks during the first six months, and every two weeks after that, not only for albumin, but more especially for the total nitrogen, amount of urea, casts, etc., and when evidence is found that elimination is substandard, to put the patient on

an absolute milk diet, plenty of water, and administer thyroid extract to increase the adrenal activity and oxidation.

Without going into a lot of case histories, which are usually tedious and tiresome, and would prolong the paper too much, suffice it to say that for two years he has used thyroid extract with the elimination measures outlined, in all degrees of toxemia or adrenal insufficiency, with the most happy results, proving its worth to his own satisfaction beyond the shadow of a doubt.

THE ADVANTAGES OF SINGLE OVER MULTIPLE DOSES OF ANTITOXIN, AND OF INTRAVENOUS OVER SUBCUTANEOUS OR INTRAMUSCULAR INJECTIONS.

In the *Journal of Pharmacology and Experimental Therapeutics* for March, 1912, PARK gives the following summary as to this matter:

Different investigators have tested the rapidity of absorption of antitoxins from the tissues and drawn attention to the superiority of intravenous injections. Notwithstanding their reports subcutaneous injections are still generally employed in the treatment of both diphtheria and tetanus. He decided to repeat the experiments of others and add new ones.

A series of rabbits and of goats were injected with 10,000 units of diphtheria antitoxin and bled at intervals for ninety-six hours. A number of persons suffering from diphtheria were examined as to the antitoxin content of the blood during the same period of time. The following two tables give one example of each method of injection in goats and one for each in human beings suffering from diphtheria.

The great advantage of the intravenous injections is manifest.

The Comparative Value of Single and Multiple Doses.—The question of giving the total amount believed to be necessary in a single injection, or dividing it into two or three injections to be given at intervals of six to twelve or more hours, is an important one. The slow absorption of the antitoxin from the tissues would seem to make the single injection by far the better method. The table shows the antitoxic strength of the blood in the two methods.

It can be seen that the single dose gives much greater antitoxin content for the first three days.

A large series of cases treated by the different methods has shown that the intravenous injections can be safely given. In all cases of tetanus and in severe cases of diphtheria intravenous injections are indicated.

(1) ANTITOXIN CONTENT OF BLOOD IN GOATS INJECTED.
(*Each received 5000 units.*)

METHOD OF INJECTION.	Units in 1 Cc. at different intervals of time.						
	3 h.	6 h.	12 h.	24 h.	48 h.	72 h.	96 h.
Intravenous.....	4.0	3.5	3.0	2.6	2.4	2.0	1.8
Subcutaneous.....	0.1	0.5	1.0	2.5	2.9	3.0	2.9
Intramuscular.....	0.3	1.3	2.0	2.8	2.8	2.6	2.4

Weight of goats about 25 pounds each.

(2) ANTITOXIN CONTENT OF BLOOD IN THREE ADULT DIPHTHERIA PATIENTS.
(*Each received 10,000 units.*)

METHOD OF INJECTION.	Units in 1 Cc. at different intervals of time.						
	3 h.	6 h.	12 h.	24 h.	48 h.	72 h.	96 h.
Intravenous (1)....	3.0	2.7	2.4	2.0	1.5	1.0	0.8
Subcutaneous (2)..	0.1	0.2	0.25	0.4	0.55	0.65	0.7
Intramuscular (3)..	0.2	0.35		0.6	0.6	0.59	0.55

Weight of number 1 about 100 pounds; of number 2 about 110 pounds; of number 3 about 120 pounds.

	UNITS IN BLOOD AT			
	12 h.	24 h.	48 h.	72 h.
Single dose.....	0.25	0.4	0.55	0.65
Dose divided into three given at 12-hour intervals.....	0.08	0.2	0.48	0.62

THE TOXICITY OF CAFFEINE.

SALANT and REIGER in the *Journal of Pharmacology and Experimental Therapeutics* for March, 1912, tell us that the toxicity of caffeine in the rabbit varies with the mode of its administration, being least when given by the mouth and greatest by intravenous administration. The toxicity is about from 15 to 20 per cent greater by subcutaneous injection than by mouth, but is about half of this when injected into the peritoneal cavity. No differ-

ence was observed in the toxicity of caffeine whether administered into gluteal or into the lumbar muscles. When introduced by this route the toxicity was found to be less by one-third than when it is injected into the peritoneal cavity, but is about 30 per cent more toxic than the subcutaneous injection. White or black rabbits were found to be less resistant to caffeine than gray rabbits. The resistance of the guinea-pig to caffeine, as in the rabbit, is greatest when given by mouth. The minimum fatal dose is less by intraperitoneal injection, but greater than by subcutaneous injection, thus differing from the rabbit in this regard. Cats are less resistant to caffeine than guinea-pigs or rabbits. The minimum lethal dose by mouth in the cat is the same as by subcutaneous injection, but is less when given by the intraperitoneal route. The toxicity of caffeine for white mice varies according to season, being twice as toxic in the early fall as in the spring, when resistance to caffeine is about the same as that of the guinea-pig. But its resistance to caffeine in the fall was less than that of animals of other species employed in the present research. The tolerance of the white rat for caffeine is about the same as that of the pigeon. No effect of season was noticed. The toxicity was the same whether caffeine was introduced into the peritoneal cavity or into the subcutaneous tissues. The minimum fatal dose for dogs was found to be the same by mouth as by subcutaneous injection, and is almost the same as for the cat. The resistance of the pigeon to caffeine is very much the same as that of the herbivora, but it approaches more nearly the guinea-pig than the rabbit in this regard. The toxicity varies much more in different individuals when given by mouth than when injected subcutaneously. The toxicity of caffeine varies in the guinea-pig according to season, and this seems to be the case also in mice.

Age is likewise a factor in the toxicity of caffeine, young animals being more resistant than the full-grown and older animals. This was shown in experiments on rabbits, cats, and dogs. The symptoms of caffeine poisoning were also different in puppies and full-grown dogs. Diet such as carrots and oats did not influence the resistance of rabbits and guinea-pigs to caffeine. Low protein diet tends to decrease resistance to caffeine in dogs. Young growing dogs are less resistant to caffeine on a meat than on a milk diet.

Caffeine is not cumulative in the rabbit or dog, even if administered for a considerable length of time. A mild tolerance may be induced in the rabbit under certain conditions, but not in dogs under the condition of the experiments made in this investigation. The possibility, however, that dogs may acquire tolerance for caffeine is not excluded. Although the rabbit tolerates a much larger single dose of caffeine than the dog, it was found, in experiments on chronic caffeine intoxication, that the rabbit is less resistant to caffeine than the dog. The toxicity of caffeine is increased under some pathological conditions, since comparatively smaller doses proved to be fatal to rabbits, cats, and dogs, when marked lesions not due to caffeine were found at autopsy. Glycosuria was observed in rabbits, guinea-pigs, and cats when caffeine was given in sufficient amounts.

CHRONIC CHLORAL POISONING.

WALLACE in the *Journal of Pharmacology and Experimental Therapeutics* for March, 1912, describes experiments in which gradually increasing doses of chloral were given daily by the stomach to dogs. As chloral is changed in the body to trichlorethylalcohol, and this unites with glycuronic acid, forming the inert urochloralic acid, it was thought that the formation of this combination would keep pace with the increasing amount of chloral given, and by means of this protective agency a tolerance be established. The results of the experiments may be summarized as follows:

1. The earlier doses of chloral produce vomiting, but later the stomach becomes tolerant to the drug and vomiting does not occur. This local tolerance is common to gastric irritants. When large doses, 5

grammes or more, are given daily, a gradually increasing looseness of the bowels results, which eventuates in a diarrhea. The chloral given, however, is absorbed.

2. As far as symptoms of depression of the nervous system are concerned, only a slight degree of tolerance is obtained. After doses sufficient to induce narcosis are reached, the gradual increase in dosage still brings about complete narcosis, but its duration becomes less. The tolerance of the nervous system is not marked therefore, and is comparable to that from alcohol.

3. As the dose is increased no change in metabolism, as measured by total nitrogen and urea, is seen, and the animal maintains a fairly constant weight. After daily doses of 5 grammes or more the ammonia rises, however, and may reach twice the normal figure. The urine gives no qualitative reactions for acetone, or diacetic or oxybutyric acid. Albuminuria finally appears. The urine contains no sugar.

4. The chloral excretion takes place through the kidney and was calculated quantitatively by the amount of organic chloride in the urine. The exact forms in which it is excreted—*i.e.*, the relative amount of free chloral, trichlorethylalcohol, etc.—have not yet been determined. Calculated as chloral from the organic chlorides eliminated, with small doses from 70 to 85 per cent of the chloral ingested is excreted within eighteen hours. As the dose incerases this percentage increases slightly. A breaking up of the chloral molecule, therefore, does not occur.

5. The glycuronic acid excretion as determined by the method of Tollens runs fairly parallel to that of the chloral. Thus after a dose of 2 grammes chloral, 1.73 grammes chloral and 1.35 grammes glycuronic acid were excreted. After 8 grammes chloral, 7.21 grammes chloral and 6.21 grammes glycuronic acid were excreted. With the smaller dose, therefore, 0.75 gramme chloral and with the larger 2.6 grammes chloral were not paired with glycuronic acid.

It may be said in conclusion that although the change of chloral to trichlorethylalcohol and the pairing of this with glycuronic acid is of the nature of a protective mechanism, it cannot in itself bring about any marked tolerance for the drug, but rather is analogous to the power of the body cells to destroy morphine in cases of morphine tolerance.

PHYSOSTIGMINE WITH MORPHINE IN THE TREATMENT OF PAIN FOLLOWING ABDOMINAL OPERATIONS.

SCHENCK commends this plan of treatment in the *Journal of the Michigan State Medical Society* for March, 1912. He says that concerning most of the points in the treatment of patients who have undergone an abdominal operation, there is, at the present time, a very considerable unanimity of opinion. Such is not the case, however, concerning the administration of analgesics. One finds in the different clinics and in the work of different surgeons marked variations in the treatment of abdominal pain, from which, in some degree, practically all patients suffer.

There can, of course, be no denial of the statement that no drug is as efficacious as morphine for the relief of pain, yet the extent to which it is used following laparotomy differs widely. On the one hand there are surgeons who never employ opium; on the other, those who administer it, almost if not entirely, *ad libitum*. Probably the majority use the drug sparingly, relying on two or at most three doses during the first twenty-four hours, later substituting codeine or heroin.

Were it not for the fact that morphine inhibits peristalsis and thus predisposes to meteorism, and to the additional fact that nausea and vomiting are prolonged when the drug is freely given, it would be universally used in sufficient quantities to insure comfort to the patient. Could we combine with the morphine some drug which would completely antagonize the paralytic effect on the intestine, an ideal analgesic would result. Schenck believes that we have, to some extent, such a drug in the active principle of calabar bean, namely,

physostigmine or eserine. That physostigmine completely fulfils the condition is probably not true, but he feels quite sure that combining physostigmine with morphine lessens to a considerable degree the objectionable effects of morphine when used alone.

The hypodermic administration of eserine for its effect on the intestinal wall is, of course, not new. Von Noorden, in 1901, seems to have been the first to recommend it for this purpose. Mozskowicz, Arndt, and Maragliano were among the first to use the drug in the treatment of postoperative intestinal paralysis, and its trial in cases of meteorism has become quite general. Its value, once distention has occurred, is questionable, even in proper cases. It is not only valueless, but positively harmful in those instances of ileus due to peritonitis or to mechanical causes.

In 1904 appeared an article by Vogel of Bonn, in which he stated that for three years he had been using eserine as a prophylactic for postoperative distention. He employed doses of 0.005 gramme, three or four times during the first day, giving the initial dose before the patient left the operating table. In this country Craig of Boston has given this prophylactic use most careful trial, and his three articles on the subject are both thorough and enthusiastic. Elsberg, in 1906, and Vineberg in the same year, began its prophylactic use at the Mt. Sinai Hospital, and the latter reported favorably for both.

Since then physostigmine has been used quite extensively, more, however, after the distention has occurred than as a routine prophylactic. Judging from the literature and from conversations with those who have tried the drug to relieve meteorism, Schenck states that thus used it has not found very great favor.

It seems to be well established, theoretically, at least, that eserine in therapeutic doses produces a stimulating effect on the intestinal musculature. This it probably does in two ways: (1) by depressing the spinal reflex, thus lessening the splanchnic inhibition, and (2) by its selective action on the muscle of the intestine, similar to its action on the ciliary muscle of the eye. Whether this action on the intestine is directly on the muscle fiber or on the nerve terminals is not known and, as Craig says, does not affect our purpose. Medicinal doses affect the circulatory system but little, causing if anything a rise of blood-pressure and a slowing of the pulse. It does not affect the respiration and acts as a mild nervous sedative. The sulphate of physostigmine being very deliquescent, the salicylate should always be used.

In doses of one-seventy-fifth grain there is no danger of poisoning. Stevens reports the case of a woman who received by mistake, soon after an operation for double pyosalpinx, a hypodermic dose of 2 grains of eserine sulphate. Within two or three minutes the bowels moved profusely and involuntarily. The respirations became shallow and the pulse imperceptible. She remained unconscious for twelve hours, but recovered with no ill effects. This in spite of the enormous dose received.

The actions of atropine and physostigmine are entirely antagonistic except for the fact that both stimulate intestinal peristalsis. Atropine is, therefore, the antidote in eserine poisoning.

Craig found that after using eserine "morphine was rarely needed or required, except for distinctly extra-abdominal pain, but when so demanded either morphine or codeine can be given with greater freedom, as there is less danger of obnoxious constipation after its use."

Following this hint Schenck made in 1907 hypodermic tablets containing one-sixth grain morphine and one-seventy-fifth grain physostigmine. These were used in selected cases for six months with satisfactory results, but the tablets were not properly protected from the light and air, and when they turned brown were discarded.

This spring, following a conversation on the subject with Dr. E. M. Houghton, of the Research Department of Parke, Davis & Company, similar tablets were prepared, and Schenck has used them in all cases in

which intestinal rest was not desired and in which there was no danger of masking important symptoms. The cases, numbering fifteen, are all comparatively simple ones, as he has been careful not to use the eserine when there was infection, intestinal injury, or other complication.

CARDIAC DISEASE IN CHILDREN.

In the course of a lecture on this topic in the *Clinical Journal* of April 3, 1912, MOON reminds us that in cases with chronic valvular disease which is well compensated, one does not so much require treatment as guidance. Plenty of fresh air, good food, and hygienic surroundings are of the first importance. Special care should be taken to guard against a fresh attack of rheumatism; the child should have woolen clothing next its skin, and not go out too readily in cold, damp weather. Where it is possible to choose a climate, one should select a dry, bracing place with plenty of sunshine and a house on gravel soil with a southerly aspect.

Diet.—The meals should be small, and in particular all excess of starchy foods and sweets must be avoided, which so readily give rise to flatulence and acidity; there is no objection to nitrogenous food being taken by children in ordinary quantities.

Exercise in moderation is undoubtedly good, but certain forms of it must be absolutely forbidden; thus swimming, and games which involve much running, such as football, also racquets and boxing, must be ruled out; nor is the element of competition to be permitted, for that always implies drawing upon the heart's reserve power. On the other hand, there is no objection to bicycling, if the patient will walk up the hills; riding, rowing, skating, and also cricket are all permissible in moderation. It is often well, according to Moon, even for cases with compensated heart lesions, to lie down for half an hour every day. With the first sign of failing compensation, as shown by shortness of breath, palpitation of the heart, or pulmonary congestion, then rest becomes imperative; it need not, perhaps, be absolute, but it will certainly mean lying down for the larger part of the day. It may then be necessary to employ specific heart tonics, children taking digitalis very well; often this is suitably combined with an aperient, and a useful prescription of Dr. Eustace Smith's is infusion of digitalis, infusion of senna, infusion of calumba, one drachm of each once or twice a day for a child of ten years.

At the same time Moon has generally found in these early stages of failing compensation that small doses of arsenic and iron act extremely well. When compensation has completely broken down with pulmonary edema and ascites, then there is no material difference in the treatment of a child and an adult. On the whole dropsy is not so common in children as in adults; on the other hand, the liver is more affected than other organs, and one seldom fails to observe in it symptoms of cardiac congestion in the majority of cases.

Special caution must be observed as the time of puberty approaches; in particular one must be careful to prevent overpressure at school, and it is advisable that no serious employment should be engaged in till well after puberty is passed.

THE EXAMINATION OF CEREBROSPINAL FLUID.

DUNN and STEVENS give in the *Interstate Medical Journal* for April, 1912, a résumé of this subject which has a distinct therapeutic bearing. They conclude that:

1. Lumbar puncture should be resorted to almost as a routine in serious traumata of the central nervous system and in posttraumatic neurasthenia both as a diagnostic and therapeutic procedure.

2. Inflammatory affections of the brain and cord cause definite changes in the cerebrospinal fluid. Acute and chronic inflammatory affections (the so-called degenerative inflammatory types) can be differentiated by examination of the cerebrospinal fluid.

3. Simple degenerative conditions, such as combined degeneration, and the degen-

eration of pernicious anemia may cause no manifestations in the cerebrospinal fluid.

4. Parasyphilitic processes can be diagnosed in their earliest stages only by serological methods. Only in their early or exudative stages can we hope for curative therapy.

5. The effect of therapy may be checked up by occasional examinations of the cerebrospinal fluid.

6. A positive Wassermann reaction may occur in the cerebrospinal fluid in cerebrospinal syphilis.

POINTS IN THE DIAGNOSIS AND NON-SURGICAL TREATMENT OF DUODENAL ULCER.

HERSCHELL in the *Interstate Medical Journal* for March, 1912, in discussing this subject expresses the belief that the acidity of the gastric juice must be kept as low as possible. It was formerly supposed that an excess in hydrochloric-acid acidity in the gastric juice was an important factor in the production of gastric and duodenal ulcer. We now know that such is probably not the case, and that granted a reduction in the resisting power of the gastric or duodenal mucosa, gastric juice of normal acidity is quite capable of determining an ulcerative process. That the reduction in the acidity of the gastric juice is an important factor in the cure of duodenal ulcer must be apparent from the experiments of Bolton, who found that the gastric ulcers, which are invariably caused by the injection of gastrotoxic substances into the peritoneums of guinea-pigs, were not formed if the acidity of the gastric juice was kept below normal by neutralization.

In practice the writer attempts to diminish the acidity of the gastric juice by giving 8 or 10 ounces of hot Vichy water two hours after meals, or the following powder stirred up in hot water:

℞ Sodii bicarb., gr. x;
Calcii carb., gr. x;
Sac. lactis, gr. x;
Ess. menth. pip., m. ij.

We must also secure the stomach against distention. One of the chief ways in which a gastroenterostomy conduces to the healing of a duodenal ulcer is by preventing distention of the stomach. We can secure much the same result (*a*) by preventing pyloric spasm by the administration of atropine and alkalies; (*b*) by giving the food in small amounts at comparatively short intervals and in a finely divided condition; (*c*) by giving the drink, which should be hot water, not with the meals, but when the stomach is empty. It will then pass quickly out of the stomach and incidentally wash and cleanse the surface of the ulcer in the duodenum.

The bowels must be kept freely open. The formula which the writer usually first prescribes for this purpose is the following, which although not pleasant is of extreme efficiency:

℞ Magnes. sulph., ℥vj;
Ext. cascara liquid (Parke, Davis & Co.), ℥iij;
Tinct. belladonnæ, m. xxx;
(This is omitted if the patient is already taking belladonna in the powders)
Aquæ chloroform, q. s. ad ℥vj.

Sig.: One-sixth part is to be taken at bedtime mixed with an equal quantity of water. This dose may be increased or diminished according to the effect produced.

Herschell also believes that in these cases preparations of aloes should be avoided, and also those of agar-agar.

Any anemia present must be treated. In order not to interfere with the medicaments which are being given by the mouth, the writer invariably administers the iron in this affection by intramuscular injection into either the deltoid or the glutei. His favorite preparation is the cacodylate of iron in doses of 0.01 gramme made up to 1 Cc. with normal saline solution.

A suitable diet must be prescribed. This has to fulfil the following indications:

(*a*) It must have a high combining power for the acid of the gastric juice.

(*b*) It must excite the flow of gastric juice as little as possible.

(*c*) It must not distend the stomach.

(*d*) The products of its digestion must be as unirritating as possible to the ulcer.

(*e*) It must provide a sufficient number of calories to preserve the nutrition equilibrium of the patient.

All these indications are met as far as is humanly possible by pounded meat, chicken, and bread.

THE OATMEAL CURE IN DIABETES.

In the *Interstate Medical Journal* for April, 1912, STROUSE says he thinks it is not very difficult to sum up the general value of oatmeal in diabetes. Practically all investigators, who have tested the cure in a thorough manner, agree that it is most beneficial, especially in severe cases where other means have failed to reduce either sugar output or signs of acidosis. Whether this action depends on any inherent quality of the oat starch is still a disputed point. The modus operandi must be considered as yet unexplained; numerous theories have been advanced, but none is supported by actual knowledge.

PREGNANCY AND CHLOROFORM ANESTHESIA.

WHIPPLE in the *Journal of Experimental Medicine* of March 1, 1912, records experiments and gives this summary of his results:

Pregnant dogs are susceptible to chloroform administered shortly before delivery or during labor, and show the same degree of liver injury as normal dogs, or even a somewhat greater one.

Chloroform anesthesia may cause more or less hyaline necrosis in the border zone between the maternal and fetal parts of the placenta that may lead to hemorrhage, placental separation, and premature delivery.

Chloroform anesthesia causes no injury to the liver of the fetus nor to any other fetal organ, in spite of the fact that it can be demonstrated to be present in these tissues.

These experiments raise objections to the use of chloroform in pregnant women where an anesthetic must be continued for half an hour or longer. Chloroform anesthesia may be admissible for the few minutes at the end of the delivery, but when operative measures are necessary, before or after delivery, it is a dangerous anesthetic and surely capable of producing injury to the liver in the manner recognized in the case of normal persons.

Objections may be raised to the application of conclusions derived from experiments on dogs to human cases; but the similarity of the effects of chloroform in man and dog surely afford a sound basis of comparison.

Two fundamental facts would seem to be now established: (1) Normal human adults may be fatally poisoned (late chloroform poisoning) by chloroform anesthesia of one-half to one hour's duration. (2) Normal and pregnant dogs are equaliy susceptible to late chloroform poisoning, and may be fatally poisoned by an anesthesia of two hours' duration.

Hence one may conclude that probably normal and pregnant human beings are equally susceptible to chloroform poisoning, that chloroform anesthesia during any part of the pregnant period is capable of causing liver necrosis, and, consequently, that chloroform is a dangerous anesthetic.

TREATMENT OF THE SO-CALLED HEMORRHAGIC DISEASE OF THE NEW-BORN.

SCHLOSS and COMMISKEY in the *American Journal of Diseases of Children* for April, 1912, reach these conclusions:

1. In the hemorrhagic conditions of the new-born, the coagulation of the blood may be normal, delayed, or absent.

2. A deficiency or absence of thrombin or fibrinogen may give rise to imperfect blood coagulation and uncontrollable hemorrhage.

3. In some cases of hemorrhage in the new-born in which blood coagulation is apparently normal, it seems probable that the hemorrhage is due to some localizing vascular lesion or defect present only in the areas from which the bleeding occurs.

4. The subcutaneous injection of whole blood is harmless and is of apparent value in the treatment of the hemorrhage.

A STUDY OF EXPERIMENTAL POISONING WITH CHLORAL HYDRATE.

HOPKINS in the *American Journal of Obstetrics* for April, 1912, reaches these conclusions from his experiments: (1) That chloral hydrate may occasionally produce fatty changes in the liver similar to those caused by small doses of chloroform. (2) That it is impossible to produce by administration of chloral hydrate necroses in the liver similar to those found in delayed chloroform poisoning and eclampsia. (3) That chloral hydrate produces no histological changes in the kidneys. (4) That chloral hydrate causes an increase in the urinary nitrogen which may be delayed until after recovery from anesthesia and tends to return again to normal.

NARCOSIS.

In the course of an address printed in the *Bulletin of the John Hopkins Hospital* for April, 1912, VERWORN asks and tries to answer the question, What occurs in the neurons of the cerebral cortex during an act of consciousness? Verworn asserts he is far from intending to give here a detailed analysis of these processes. He wishes to emphasize only a single general fact. Let us conceive a condition of the cerebral cortex in which the neurons are in metabolic equilibrium—that is, in which the two phases of metabolism, the anabolic and catabolic phases, balance each other. We should have then a state of complete rest, in which no act of consciousness takes place. An act of consciousness ensues only when the metabolic equilibrium in a chain of associated neurons is disturbed by an exciting stimulus which causes a sudden increase of the catabolic phase. Every act of consciousness is the expression of a catabolic disturbance in the cortical neurons. This is not merely an assumption; it is shown, among other things, by the fact that even the simplest conscious process requires the associated coöperation of several ganglion-cell stations, and that on the other hand the nerve fibers which provide for this associated coöperation conduct no other impulses except catabolic excitation processes. On this general basis, for all processes of consciousness there are two possible origins of unconsciousness. Loss of consciousness will occur either because the ganglion cells are depressed, so that the external stimuli produce no excitation, or because exciting stimuli are absent. The first condition prevails in narcosis; the irritability is so much depressed that stimulation is ineffective. In sleep, the second alternative is predominant; the first plays at most the rôle of a predisposing part for the induction of sleep. We sleep, and determine the moment of going to sleep by limiting as far as possible the sensory stimuli, especially the optical. This state of the utmost exclusion of external stimuli lasts throughout the entire period of sleep. This is supported to a certain extent by fatigue—that is, the decrease of irritability, which the ganglion cells have sustained by the constant action of sensory stimuli while awake during the day. A comparison of the processes which occur in the ganglion cells of the cerebral cortex during sleep and during narcosis will show us plainly how diametrically opposed these are.

During sleep, restitution occurs. The irritability, which becomes reduced in the course of the day as a result of the fatiguing action of sensory stimuli, gradually rises again. The fatigue of the ganglion cells, which, as we know, depends only on a relative lack of oxygen, becomes completely dispelled. The supply of oxygen, which during constant activity was not quite sufficient to keep irritability at its maximum, is, after the cessation of functional demands, fully sufficient to banish the fatigue. In short, during sleep, restoration occurs principally by the action of oxygen. In the morning the ganglion cells are refreshed and possess their full capacity for work.

How different is narcosis! In narcosis there is, on the contrary, as we have seen, a depression of the oxidation processes. Experiments show that even with a free supply of oxygen a fatigued ganglion cell does not recover at all during narcosis.

There occurs, rather, a gradual asphyxia, and although this process is only developed to a small extent in light narcosis, still it presents just the reverse of that which sleep brings to the ganglion cells—in the one case, recovery from fatigue by oxidation; in the other, prevention of restitution by inhibition of the oxidation process. There can be no confusion between sleep and narcosis.

If we use narcotics to induce sleep, we must always bear in mind that no true sleep occurs as long as the narcosis of the cortex lasts. We can speak of "hypnotics," or "remedies for sleep" (Schlafmittel), only in the sense that, when there is constant excitation of the ganglion cells, they reduce irritability and induce a greater degree of depression, so that true sleep may take place as the narcosis passes off. In that sense a hypnotic may prove beneficial in the hands of the physician, and when used sparingly. The physician must, however, never forget that not the entire period of unconsciousness which follows the use of the hypnotic is true sleep, but that at first it is, rather, a depression, the injurious effects of which will manifest themselves when the hypnotic is used for a longer period.

PRIMARY MUCOUS COLITIS.

DANIEL, in the *Proctologist* for March, 1912, has this to say in regard to the treatment of this condition with lavage through the appendix which has been opened:

In general, normal saline or 5-per-cent glucose should be used, as the least irritating of lotions, but often one is forced to use chemical lotions, for the following reasons: In some cases if 1½ or even 2 pints of saline is passed through the appendix it works along the bowel and distends the sigmoid, but it is not expelled spontaneously; sometimes gentle massage over the colon leads to its expulsion, but in other cases this fails (Daniel refers to efforts on the part of the patient). In such cases it may be necessary to use astringents; of these the mildest are employed—hazeline, zinc sulphate, a few drops of formalin, or the smallest quantity of silver nitrate, either of which generally leads to a spontaneous evacuation. When the solution is retained it leads to a certain amount of bothersome diuresis; it is surprising how rapidly the fluid is at times absorbed, while in other cases it is slower. In one case Daniel reports having passed the sigmoidoscope while the solution was retained, and saw the sigmorectal sphincter tightly closed, but a very slight pressure from below relaxed it. Thereafter he found if a small enema of half a pint was used the colonic fluid was usually expelled with the enema.

Want of improvement is another reason which leads to the use of astringents.

Hawkins and Mummery both use olive oil, believing its non-irritating qualities suit the mucosa and bring away the mucus effectively. Daniel asserts he has passed liquid petrolatum into the bowel after the saline and bowel contents have passed, which he believes does more good and is less extravagant.

Lavage per Anum.—At Plombières the water used is a simple muriated water, and its remedial effect is attributed to its radioactivity. The method of administering the douche is carefully worked out; the water is heated to about three degrees above body heat, and the "head" of fluid maintained constant by means of a system of cisterns specially devised; some 30 to 40 ounces are used, and it is passed by a long rectal tube which is supposed to pass into the pelvic colon; the patient lies first on the left side, then on the back, and lastly on the right side, as it is assumed that by these postures and antiperistalsis the fluid reaches the cecum.

At Harrogate weak sulphur water—especially one well—is used. At both spas hot baths and massage are given, and in some instances a form of "submarine" douche of water at a higher temperature (110°) than that of the bath is directed to the abdomen for ten to twenty minutes, while the patient is submerged in the bath. The whole séance lasts from forty to ninety minutes. The healthy surroundings, the changes of environment, and the hope of at

last a successful treatment with recovery do a great deal to improve these patients, and no doubt many cases of chronic constipation are cured, but true colitis cases relapse fairly soon.

That the administration of an enema may be dangerous even in mucous colitis is probable: in cases of mild or unknown ulcerative colitis it has been proved so repeatedly, two cases within the past year having died from changes set up by an injection. The first case was admitted for a minor operation quite unconnected with the gastrointestinal tract. While an enema of 3 pints was being administered the patient felt acute abdominal pain and became collapsed; she died in a few days from perforative peritonitis. The second case was to undergo a small operation, also not connected with the gastrointestinal tract; while being given an enema (again of 3 pints) she collapsed, and in a week's time a tube of mucosa 18 inches long was passed as a slough. In spite of treatment she died. Neither of these cases was aware or gave a history of colitis, but the first had a definite ulceration widely spread, and the second had two ulcers in the apparently healthy transverse colon.

In the first case an ulcer in the pelvic colon had ruptured into the peritoneum, while the enema in the second must have found an entry into the submucosa through the floor of an ulcer and stripped the whole mucosa from the splenic flexure to the sigmorectal sphincter; the rectum was not denuded of any mucosa and appeared fairly normal by the sigmoidoscope.

Daniel thinks no drug treatment is of as much value as the administration of one or two teaspoonfuls of castor oil daily, given at first as soon as the patient wakes in the morning—it usually acts in two or three hours; at a later stage it may be taken the last thing at night, and it will act first thing in the morning. In addition he finds benefit from liquid petrolatum, given in gelatin capsules, or plain, or as an emulsion in suspension; it has a tendency to nauseate, in which case the capsules are necessary. Olive oil may be given instead.

Some physicians give as much as one to five ounces of oil per diem, and if it is tolerated it does much good; some require that only such foods as leave little residue be used; others say "the colon is not empty normally, so give foods with much residue."

Daniel himself tries every patient with all forms of food; some tolerate well what others fail entirely to take. Building up is most essential, but is a great difficulty. The lactic acid milk treatment may be tried as one pawn in the game; he has little faith in its specific efficacy, but as some authorities consider a total milk diet the most successful in their hands this mode of preparing the milk may be profitably employed; it will at least decrease the monotony.

THE BANE OF BROMIDES.

ATKINSON under this title in the *Medical Fortnightly* of March 25, 1912, says almost any therapeutic expedient might justify itself upon the plea that there is nothing better available; although, as he has tried to show, the bromide treatment of epilepsy does more harm than good, and therefore ought to be denied this justification. However, we need not argue the point, because this kind of a plea is no longer valid. The treatment of epilepsy with solanine and verbenin, with lecithin intercurrently, is available to all, and is so far superior to the bromide therapy as to admit of no comparison. Solanine and verbenin are both of them organic vegetable alkaloids, with a low chemical potential, a normal pharmacological action, and a fractional dosage. Lecithin is a normal preparation of nerve substance, with no pharmacological properties at all, but an organotherapeutic action.

The proof of the pudding is in the eating. Under the bromide treatment his experience with epilepsy was the common experience of failure, and worse, so that he often deliberately withheld it as being the lesser evil. Since he has abandoned the bromide treatment and employed solanine, verbenin, and lecithin, he has averaged a cure in 50 per cent of his cases—by which he means

that at the end of a period varying from six months to a year he is unable to discontinue the remedies entirely without a return of the seizures, while at the same time the patient's mental state is markedly cleared and his general condition greatly improved. In all but a very small number of obstinate cases the intervals between the fits are progressively lengthened and the mentality correspondingly brightened. Atkinson asserts that what he can do any one else can do, if he will but free himself from the obsession of the bromides and avail himself of therapeutic agencies which lie to his hand whose immeasurably superior effects may be had for the trying.

He asserts he has had no idea of posing as a rabid extremist. The bromides have their uses. Even in epilepsy they are occasionally useful as an emergency measure. In status epilepticus he does not hesitate to give them in large doses, to tide over; just as he would use chloroform to tide over a case of eclampsia. But as a steady, therapeutic measure, he arraigns them as totally unfit, wholly unwarrantable, worse than useless, and altogether unnecessary.

SUPRARENAL GLAND EXTRACT IN CARDIAC DYSPNEA AND CARDIAC DROPSY.

VOIGHT reminds us, in the *British Medical Journal* of March 9, 1912, that the practitioner often has to deal with failure of compensation in cardiac cases. Digitalis, strophanthus, convallaria, caffeine—all are useful in their turn; but sometimes one and all may fail us. There is no doubt that strychnine hypodermically is an invaluable remedy in failure of cardiac compensation; that the nitrites are of great service in some cases; that atropine subcutaneously relieves the dyspnea of others; that potassium iodide is not to be despised as a heart tonic; and that the Nauheim bath treatment, judiciously applied and carefully supervised, does wonders in the early stages of compensation failure.

But there is another remedy which can be relied on in some cases. This is suprarenal gland—the solution of the extract of the gland, used hypodermically or by intravenous injection, or the gland substance, given by the mouth in tablet form.

Voight has had under his care several cardiac cases in which dyspnea and dropsy were prominent symptoms, and in which suprarenal gland was administered. He proposes here to give a report from his notes on two of these cases only. In the others the action of the remedy in combating the symptoms was maintained. In all, more or less severe dyspnea was relieved, sometimes by the hypodermic injection of from 5 or 10 to 15 minims of the 1-in-1000 adrenalin solution (Parke, Davis & Co.), at other times by a 5-grain tablet of the suprarenal gland substance administered by the mouth. When the dyspnea was not very severe, the dose of adrenalin solution injected hypodermically was from 5 to 10 minims (1-in-1000 solution), and the 5-grain tablet of the gland substance was halved for each dose by the mouth. In general practice one cannot always make provision for the amount of urine passed by the patient in twenty-four hours to be accurately measured. But where he succeeded in making such provision while his patients were under treatment by hypodermic injections of adrenalin or by the tablets of suprarenal gland substance administered by the mouth, he almost invariably found the quantity of urine increased and the dropsy at least temporarily diminished by the treatment. Sometimes the apparent effect of the remedy in this respect was marked and striking.

A NEW METHOD FOR CONTROLLING THE ADMINISTRATION OF SERUM IN EPIDEMIC MENINGITIS.

SOPHIAN in the *Journal of the American Medical Association* of March 23, 1912, states that the effect on the blood-pressure is inconstant on withdrawing fluid by lumbar puncture in meningitis; most often there is a drop in blood-pressure, occasionally quite a large one, especially on withdrawal of large quantities of fluid. Sophian's ordinary procedure in an adult case, beginning with an average blood-pressure

of 110 mm. of mercury, is to stop the further withdrawal of fluid if there is a moderate drop in blood-pressure—for example, of 10 mm. of mercury; in children, of 5 mm. Occasionally the blood-pressure begins to drop very quickly as soon as the removal of fluid is begun; the blood-pressure then is a guide indicating how rapidly or slowly the fluid may be withdrawn. In other cases there is no change in blood-pressure, or there may even be a rise, on removing fluid; one can withdraw as much fluid as possible, usually till the cerebrospinal fluid pressure is normal, this being roughly measured by counting the drops of fluid as they flow from the needle; one drop of fluid every three to five seconds corresponds approximately to a normal pressure.

After withdrawal of a suitable quantity of cerebrospinal fluid, the serum is ready to be injected. As usual, the serum is warmed to body temperature and then injected slowly, either by the gravity method or by syringe. Sophian much prefers the gravity method of injecting the serum; it has many advantages and few of the disadvantages of the syringe method. As a rule, as soon as the injection of serum is begun, the blood-pressure drops and continues to drop steadily. Reasoning by the old method of injecting serum, one would expect a rise in blood-pressure; this, however, is rarely the case. As stated, in the great majority of cases when the injection of serum into the subarachnoid space is begun, the blood-pressure drops and continues dropping steadily as the larger quantity of serum is injected; after there has been a material drop, for example, of 20 to 30 mm. of mercury, the blood-pressure begins to drop relatively much faster if more serum is injected. Thus if an injection of 15 Cc. of serum causes a drop of 20 mm. of mercury in blood-pressure, injecting only a few more cubic centimeters of serum may cause a sudden drop of 40 mm. of mercury more, making a total drop of 60 mm. or more.

In one robust adult whom Sophian treated there was a drop of 30 mm. of mercury after injecting only 12 Cc. of serum. His was a very severe case, and Sophian wished to introduce as much serum as possible; he injected 3 Cc. more, making a total of 15 Cc. of serum. His blood-pressure, at one bound, dropped 30 mm. more, making a total drop of 60 mm. His clinical signs at this time did not indicate shock; the pulse was fair, the color was good, but breathing was shallow and a little irregular. Sophian decided, however, to watch him for a time. A few minutes later he suddenly stopped breathing; then his heart stopped. Immediate active treatment gave immediate response. It is easy to see how these patients who have had a large drop in blood-pressure, with not much other evidence of shock, may thus suddenly succumb either during or after the injection.

Sophian's usual technique in the operation of administering serum is to have one assistant take blood-pressure readings throughout the whole operation. If the blood-pressure drops during the removal of cerebrospinal fluid, he uses it as a guide indicating when to stop withdrawing fluid. He accepts, as a rule, the arbitrary drop of 10 mm. of mercury. He uses the blood-pressure as an absolute guide, indicating the quantity of serum that he can safely inject; here it is also a guide as to how quickly the serum may be injected. As a rule, very rapid injection under considerable force will cause a greater drop in blood-pressure. By the gravity method the serum is allowed to run in slowly by gravity, the funnel being raised or lowered to regulate the flow. The barrel of a 10- to 15-Cc. antitoxin syringe may be used as the funnel, attached to about 12 inches of rubber tubing about one-quarter inch in diameter. Ten minutes is a good average time to allow for the fluid to run in, though Sophian asserts he has frequently taken twenty minutes or longer, especially in cases beginning with a low blood-pressure, or when the blood-pressure dropped very quickly. It is much harder to control the rate of injection by the syringe method, and one may accidentally use too much force in injecting. Sophian has found that a total drop of 20 mm. of mercury in an adult with average blood-pressure of 110 to 120 mm. of mer-

cury is a safe indication to stop the further injection of serum. Occasionally there is an initial rise in blood-pressure after the injection of a few cubic centimeters of serum, followed by a subsequent drop as larger quantities of serum are injected. Very rarely the blood-pressure shows a material rise after the injection of serum.

Since Sophian began using this method, the average dose of serum that he has used has been considerably smaller—frequently not more than 15 Cc., averaging 20 to 25 Cc. in adults, and in proportion in children. When the blood-pressure has allowed, Sophian has injected larger quantities also, 30 to 40 Cc., very rarely more. Judging by the good results with the smaller doses of serum, he believes that it is very rarely necessary or beneficial to inject more than the maximum of 40 Cc. of serum. The method is of great benefit not only in the average case, but also in the atypical and difficult one; thus in cases with thick plastic exudate, when the fluid will not flow through the needle, it is a reliable guide, absolutely indicating how much serum one can inject safely under pressure; similarly in cases with little exudate, in which one introduces a larger quantity of serum than the cerebrospinal fluid withdrawn. If the fluid be injected into the subarachnoid space, under wrong diagnosis, in cases with posterior basic meningitis, the drop in blood-pressure will be very great after injecting only a few cubic centimeters. The blood-pressure is also a guide in injecting serum directly into the ventricles, in cases of posterior basic meningitis.

What clinical symptoms are associated with the drop in blood-pressure? In the order of their appearance these are: Stupor, which deepens more and more as the blood-pressure fails; respiration becomes superficial and irregular, at times deep, stertorous, slow, and irregular; with a large drop in blood-pressure, breathing may stop suddenly; pulse will often continue good, even with a large drop in blood-pressure, and even with marked change in the breathing; at times the pulse becomes slow and irregular—the pulse, therefore, is very often misleading; the pupils dilate, increasing with the greater drop; incontinence of feces and urine occurring during a lumbar puncture usually accompanies a drop in blood-pressure, and is a warning.

What is the immediate treatment for severe symptoms during or after the injection of serum? As already indicated, with a material drop in blood-pressure further injection of serum should be stopped. If, however, the blood-pressure suddenly drops very much, possibly accompanied by the above-mentioned symptoms, the indication is immediately to remove fluid from the canal; if one uses the gravity method for injecting, this is easily done by lowering the funnel; in bad cases in which the breathing stops, as much fluid as possible should be removed and active artificial respiration begun. Adrenalin in large doses by intramuscular injection, and other vasomotor stimulants, and atropine help. Even with severe symptoms, if these measures be applied immediately and actively, the patient usually responds.

What effect has adrenalin administered by intramuscular injection before the puncture in preventing the symptoms mentioned? Adrenalin administered before the puncture will tend to prevent the large drop in blood-pressure on injecting serum. Sophian prefers not to use adrenalin in this way except in cases with initial low blood-pressure.

In reference to the use of general anesthetics during the operation, Sophian states, briefly, that in his experience general anesthesia is dangerous, and that it should be used only when absolutely necessary in violent patients. During the administration of an anesthetic the blood-pressure is a comforting guide. He has found that giving many patients water through a straw will keep them quiet; even delirious adults will reflexly suck on the straw and quickly become quiet. During the operation the patient will sometimes drink as much as nine or ten glasses of water. It acts especially well with children; he has referred to it as "water anesthesia."

He is now tabulating his results since he

has used the blood-pressure method in treatment. Most of the cases were studied in the present Texas epidemic. The results were extremely good. The general reaction following the injections was usually not as severe as formerly; temperature did not rise as much; the patient was usually more comfortable and the general condition better. The dose of serum, as stated, was much smaller; very young children about or under one year especially at times could not bear more than 2 to 3 or 4 Cc. of serum, and in a number of cases responded wonderfully well. In 185 cases, roughly tabulated, the total mortality was 25 per cent, this including many patients who were brought to the hospital in very bad condition. A number were brought in during the very last stages, and some were brought in from a distance of up to a hundred miles; others, with pulmonary edema, who died a few minutes later. Excluding these apparently hopeless cases in which the patients died in from a few minutes to twenty-four hours after admission, the mortality was about 10 per cent. The cases considered hopeless were marked so on the chart immediately on admission.

Most of the meningitis cases studied were in adults; many patients were past middle age; they included negroes and whites. The mortality was the highest among negroes; they seemed to offer little resistance, and easily developed bronchopneumonia. In children the mortality after exclusion of apparently hopeless cases was roughly about 5 to 6 per cent, among them being a number below one year of age. There were also about seven cases of posterior basic meningitis on the list.

Sophian's conclusions are as follows:

1. The old method of administering serum is inaccurate and sometimes dangerous.

2. Blood-pressure change is a very accurate guide to the quantity of serum that can be safely injected, frequently also indicating the quantity of cerebrospinal fluid that can be withdrawn.

3. The average dose of serum as controlled by blood-pressure is smaller than by the old method.

4. Following an injection of serum, controlled by blood-pressure, the after-effects are usually much less severe.

THE MANAGEMENT OF CARDIAC FAILURE IN DIPHTHERIA.

According to COGHLAN, writing in the *British Medical Journal* of March 9, 1912, the treatment of patients suffering from cardiac failure accompanied by persistent vomiting should be conducted on the following lines:

1. *Position of the patient in bed.* The head should be low to prevent cerebral anemia, while the foot of the bed should be elevated. This may help retention of the rectal feeds.

2. *Clothing.* Patients during the stage of cardiac depression become restless and throw off the bedclothes. They should therefore be warmly clad, and for the same reason hot-water bottles should be placed in the bed.

3. *Nourishment.* All food by the mouth should be stopped and nutrient enemata should be administered. The rectum should be irrigated twice daily with warm boracic solution, otherwise irritation may be set up, and retention of nutrients become impossible.

Treatment of Cardiac Depression.—This must be combated by the administration of medicines. Various drugs have been used for this purpose, chief amongst them being strychnine, belladonna, and adrenalin. Since administering them in combination hypodermically he has had four successful cases, though, of course, he has also had his failures. The formula used is as follows:

> Atropine sulphate, 1/100 grain;
> Strychnine hydrochloride, 1/100 grain;
> Adrenalin chloride solution (1 in 1000), 5 minims;
> Water, 20 minims.

To be administered hypodermically every four hours.

That the above-mentioned combination exercised a beneficial influence on the favorable course of the cases followed Coghlan is convinced, and in this opinion he is

supported by Dr. Foord Caiger, who watched the cases with him from the very commencement.

Treatment of Urgent Symptoms.—Thirst. This is first met by the administration twice daily of small enemata of normal saline solution, whilst teaspoonful doses of iced water may be allowed as soon as the vomiting ceases.

Dryness of the mouth may be alleviated by the application of such remedies as glycerin and boracic acid, half strength.

Pain is most rapidly relieved by the frequent application of hot fomentations.

Constipation. It may be necessary to obtain an action of the bowels, and it is important to bear in mind that, owing to the serious cardiac depression, all purgatives are contraindicated. For this reason small enemata of glycerin and water are preferable.

CARCINOMA OF THE GASTROINTESTINAL TRACT.

WILLIAM J. MAYO (*The Journal-Lancet,* Jan. 15, 1912) states that from October 1, 1897, to November 1, 1911, 1264 cases of carcinoma of the gastrointestinal tract were operated on at St. Mary's Hospital. Of this number, 863 involved the stomach, 14 the small intestine, 219 the large intestine, and 168 the rectum. These statistics show that carcinomata of the stomach form more than two-thirds of all the carcinomata of the gastrointestinal tract. Carcinomata of the large intestine come next in relative order, and the rectum follows with three-fourths as many as the colon.

In the total number (863) of carcinomata of the stomach, it was possible to do the radical operation in only 307, or 35.5 per cent of the cases. In the group of carcinomata of the small intestine, five, or 35.7 per cent, of the patients were submitted to radical operation; in carcinomata of the large intestine and rectum, nearly three-fourths of the patients were operated on radically.

These data would indicate that the stomach is the organ most frequently affected with cancer, and that only one-third of the patients submitted to operation are operated on with any prospect of cure. The remainder are subjected to palliative operations, such as gastrojejunostomy and gastrostomy, or to explorations.

The number of carcinomata of the small intestine is curiously small in comparison with the associated organs. The small intestine is the most primitive part of the gastrointestinal tract, and it is reasonable to suppose that its longer heredity makes it more resistant to malignancy than the stomach and large intestine, which organs were added later in the course of development.

In studying the question of permanent cures following resections of the gastrointestinal tract, we find that of the total number of cases of cancer of the stomach submitted to radical operation, more than 23 per cent of the patients who recovered from the operation and whose present condition has been ascertained are alive and well over five years. Fifty per cent of patients submitted to radical operation for cancer of the large intestine, and 30 per cent with cancer of the rectum who recovered from operation and who have been traced, are alive and well over five years. Every case dying within the five-year period is counted as a death from the disease, which is not fair to the statistics, as the normal death-rate during the five-year period would approximate 8 per cent.

Taken as a whole, these statistics indicate that carcinomata of the gastrointestinal tract which are sufficiently localized to justify radical operation give results fully as good as carcinomata in other parts of the body. The pessimism of the medical profession regarding malignant disease of the gastrointestinal tract is not justified by the facts. It is the failure to make diagnosis during the stage when the disease is still localized, and not any peculiar malignant tendencies of the process itself, which accounts for the fatal character of cancer in this region.

The most important question in connection with the radical cure of carcinomata concerns the lymphatics, and the proof of

this assertion cannot be better shown than in the results as to permanent cure after resection of the various organs of the gastrointestinal tract. The stomach is highly supplied with lymphatics and gives the smallest percentage of radical cures. The large intestine, having the least lymphatics, gives the highest percentage of radical cures, and the rectum, with a moderate supply of lymphatics, gives better results than the stomach, but less favorable results than the large intestine.

If one were to drop a line vertically from the cardiac orifice across the greater curvature, the stomach would be divided into two unequal parts; the larger part, composed of the dome and fundus, has but a scanty supply of lymphatics, which pass to the left to the glands lying in the splenic area, and to the cardiac glands about the esophagus. The smaller pyloric segment has nine-tenths of all the lymphatics of the stomach. They are divided into four groups:

The glands along the lesser curvature lying in the wall of the stomach itself and draining into the glands about the celiac axis.

Those along the greater curvature which lie with the gastroepiploic vessels. In this region the lymphatic current passes from left to right toward the pylorus.

That important group lying about the pylorus, the first portion of the duodenum, and the head of the pancreas.

The few glands which pass with the superior pyloric vessels.

The situation of these four groups of glands is definitely determined by the four blood-vessels, so that early ligation of the gastric, gastroduodenal, superior pyloric, and gastroepiploic vessels not only permits bloodless operation, but enables radical removal of the tributary lymphatics. Unfortunately, this glandular scheme of lymphatic drainage may be disturbed, first, because of the fact that lymphatic drainage may be irregular, passing by some glands and emptying into more distant ones; or, secondly, by blockage of a main lymphatic trunk, and the lymph flow may be turned into by-paths leading into the preaortic glands. When the disease is advanced, both of these conditions may be found to exist.

The mortality following resections of the stomach is steadily diminishing. It is now from five to eight per cent, and depends more upon the patient's condition at the time of operation than upon the operation itself. Taking into consideration that, at the present time, the initial recoveries are well above 90 per cent, and that the patients who recover get a chance of cure somewhat better than 25 per cent, it certainly seems incumbent upon the medical profession to make a more determined effort toward an early diagnosis.

It may be stated as an axiom that cancer as cancer in the stomach does not produce symptoms upon which an early diagnosis can be made. Only when its situation makes a palpable tumor-mass or produces obstruction can a probable diagnosis be established.

Primary carcinomata of the small intestine are exceedingly rare, and but few cases have come under their observation. Of the 14 cases reported in this series, five were in the duodenum, and none of them were operable. In two cases, the duodenojejunal angle was involved, and both were inoperable. Of the remaining nine cases, four involved the jejunum, and five the ileum. In two of the five cases submitted to excision, the disease had begun in a pedunculated adenoma or papilloma, and in both intussusception was present.

The large intestine is a most interesting field for study. Morphologically, it begins at the ileocecal orifice and ends at the rectum. Embryologically and physiologically, it is composed of two entirely separate organs. Taking the gastrointestinal tract as a whole, we find that the celiac axis supplies those organs derived from the foregut—that is, the stomach, liver, pancreas, and duodenum, down to the common duct. The superior mesenteric artery supplies all of those organs which are derived from the midgut and which are instrumental in assimilation and absorption. They are composed of the duodenum beyond the common duct, the jejunum, ileum, cecum, and as-

cending and transverse colon as far as the splenic flexure. In these organs which receive their blood-supply from the superior mesenteric artery, the normal peristalsis is onward. Ninety per cent of the solids are picked up in the small intestines, while 50 per cent of the liquids and 10 per cent of the solids are absorbed in the cecum and colon proximal to the splenic flexure. The inferior mesenteric artery supplies the derivatives of the hindgut, and the normal movement, excepting during defecation, is antiperistaltic. By means of mucous currents, the distal colon is intermittently engaged in passing material for further elaboration and assimilation backward into the area of midgut absorption. Under normal conditions the contents of the large intestine, as far as the splenic flexure, are fluid or semisolid. The descending colon is usually empty, acting as a passageway only into the sigmoid, where the feces become more solid in character.

Tumors of the cecum and colon proximal to the splenic flexure are sometimes accompanied by changes in metabolism; the nutrition of the patient often suffers, and profound anemia may result. Tumors of the descending colon and sigmoid are seldom accompanied by changes in nutrition, and it is the mechanical effects of the tumor which first call attention to the patient's condition.

The surgical treatment of tumors of the large intestine is greatly simplified by the study of its embryology and anatomy. The large intestine is formed on the left side of the abdomen. The head of the colon begins to rotate at about the eleventh week. As the rotation progresses the colon carries with it its blood-vessels, lymphatics, and sympathetic ganglia; and when its normal situation is finally reached, the outer layer of mesenteric attachment is merely a peritoneal adhesion, the division of which, at any situation, enables that part of the colon to be turned upon its long inner mesenteric leaf, which contains all of the important structures.

Generally speaking, malignant disease in any part of the large intestine proximal to the middle of the transverse colon is treated best by removal of all the large intestine up to and including the growth, doing lateral ileocolostomy. Beyond this point resection of the colon in one or two stages is preferred.

The lymphatics of the large intestine lie with the blood-vessels, and usually are easily removed. Many times when the lymphatics are enlarged, microscopic examination shows it to be the result of infection, and not of carcinomata. In the early stage of the disease proper mobilization of the large intestine, permitting one to secure the blood-supply with careful and accurate removal of the glands, gives a prospect of cure which justifies the most extensive operations. It sometimes happens that one or more loops of the small intestine may have become adherent and involved secondarily with the tumor mass. As a rule this takes place along the periphery of the bowel. On a number of occasions Mayo has first resected a loop of the small intestine; twice he has removed two separate loops, and in one instance three loops, removing the primary growth in the colon with the portions of the small intestine attached. In four cases he removed a portion of the bladder, and in three cases the uterus was coincidentally removed. The ultimate results in these cases of multiple resections have been surprisingly good; several such patients are alive and well more than five years.

The radical cure for carcinomata of the rectum has a bad name in surgery, which is due more to inefficient methods of operation and purely sentimental attempts to conserve function than to the character and location of the disease. A permanent colostomy in the middle of the left rectus muscle should be made as the primary operation in the majority of cases of carcinomata of the ampulla of the rectum, and at a second operation, after the lower segment has been properly cleansed, the entire rectum should be removed from behind. This method offers the patient moderate control, with the best chance of a permanent cure.

High rectal and rectosigmoid growths will often be best approached through the

abdomen or by the combined method. The perineal operation should be reserved for growths in the anal region.

The frequency with which secondary carcinomata of the liver, peritoneum, or inoperable glandular involvement occur makes it imperative in all cases of carcinomata of the rectum and rectosigmoid to first open and thoroughly explore the abdomen to see whether the case is one which should be submitted to operation; and if advisable a permanent colostomy can be made at this time.

The diagnosis of cancer of the rectum is so easy that one wonders why so many patients come for consultation without a diagnosis, and why nearly 15 per cent of them have been recently operated on for supposed hemorrhoids. It is a simple matter to examine the rectum digitally, and it requires but little skill to use a proctoscope or sigmoidoscope. Neglect of these simple methods of examination causes not only disaster to the patient, but injury to the practitioner's reputation.

Lack of examination, rather than lack of knowledge, is responsible for most mistakes in diagnosis.

ACUTE, SPONTANEOUS PERFORATION OF THE BILIARY SYSTEM INTO THE FREE PERITONEAL CAVITY.

McWilliams (*Annals of Surgery*, February, 1912), stimulated thereto by an experience of two cases of perforation of the gall-bladder into the free peritoneal cavity, has conducted a study of the histories of operations on the biliary system in the Presbyterian Hospital for the past fifteen years. There are 365 such operations, with six in which the bile had extravasated through a perforation in the biliary system into the more or less free peritoneal cavity. From a study of the literature he has been able to collect 108 such cases. His conclusions to the paper are as follows:

In 3180 operations in the biliary system, acute spontaneous perforation into the free peritoneal cavity occurred 29 times, or 0.9 per cent. It is thus a very rare accident.

In 90 cases of perforation, 82 of them, or 91 per cent, occurred in the gall-bladder; three, or 3.3 per cent, perforated through the cystic duct; four, or 4.4 per cent, through the common duct; while but one, or 1.1 per cent, perforated through the hepatic duct.

Calculi are a great factor in causing perforation, for in 80 out of 108 cases, or 74 per cent, stones were found at the time of the operations. In 14 cases, or 13 per cent, it was found that no stones were present after adequate search. In the 14 remaining cases, or 13 per cent, stones may or may not have been present as no mention is made of them.

In but nine cases is it distinctly stated that gangrene was present.

Of 99 patients whose ages are given, the average was 50 years. Before fifty years there were 44 cases with 63 per cent of recoveries, while beyond fifty years there were 55 cases with 46 per cent of recoveries. Between fifty and sixty years there were 35 cases with but 14 recoveries.

Sixty-two of the cases occurred in women, or 60 per cent, and they stand the disease better than men, the mortality in women being 44 per cent as against 54 per cent in men.

Of 108 cases operated upon, 56 recovered, or 51 per cent, while 52 died, or 48 per cent. This is in contrast to the 28 traumatic ruptures reported by Rickets, operated upon with 22 recoveries, or 78 per cent. The difference is due to infection.

Early operation, as in all forms of peritonitis, is the best guarantee of success; thus, of seven cases operated upon within twelve hours of the perforation, six, or 85 per cent, recovered; of 15 operated upon within one day of the perforation, 10, or 66 per cent, recovered; of 14 within two days, seven recovered, or 50 per cent; of 16 operated upon within three days of the perforation, eight recovered, or 50 per cent; while of 10 cases that had gone four days before operation only two recovered, or 20 per cent.

Suture of the perforation is to be unhesitatingly condemned. Four out of five cases thus treated died. Simple incision of the

abdomen with drainage of the biliary region gave 47 per cent of recoveries. With cholecystectomy 48 per cent recovered. The best results were obtained with cholecystostomy, with which 61 per cent recovered.

THE CAUSATION AND PREVENTION OF CERTAIN TOXIC SYMPTOMS FOLLOWING THE ADMINISTRATION OF SALVARSAN.

McINTOSH, FILDES and DEARDEN (*Lancet,* March 9, 1912) found experimentally that the introduction of sterile laboratory salt solution is toxic and that the injection of microbe-free saline solution is non-toxic. The addition of dead bacteria isolated from the laboratory saline solution before sterilization to the non-toxic microbe-free saline solution renders the latter toxic. The toxic effect is due to the microbes themselves and not to endotoxins derived from them. The toxic effect is not due to any one variety of microbe. No increased toxicity or anaphylaxis was found to follow a second injection of the microbes.

Yakimoff has shown that salvarsan injected into animals along with various dead bacteria is more toxic than salvarsan alone; that is to say, when such bacteria are present, a smaller dose of salvarsan will suffice to kill the animal than when no bacteria are present. It is considered that this increase in toxicity is the cause of the rigors and toxic symptoms which are observed. The salvarsan is more organotrophic in the presence of bacterial toxins and less parasitotrophic, and it follows that salvarsan given in a toxic saline solution is a less efficient spirochætacidal remedy than salvarsan dissolved in non-toxic saline solution. As regards the increased toxic symptoms usually noticed in secondary syphilis, the same argument will apply. It is invariably found that a dose of a chemotherapeutic substance which will be readily borne by a normal animal will kill a similar animal infected with trypanosomes or spirochætæ; in other words, the substance is relatively more toxic in an infected animal than in an uninfected. Yakimoff has definitely shown that the toxicity of salvarsan tested upon rabbits infected with trypanosomes is proportionate to the number of trypanosomes present in the rabbits. Similarly the toxicity of salvarsan in syphilis is at its maximum when the number of spirochætæ is at the maximum—*i.e.,* in secondary syphilis. Increased reactions may therefore be expected in such cases.

McIntosh and his associates hold that salvarsan cannot have any effect primarily or secondarily upon the rigors. These occur as a result of bacterial contamination of the water with or without the presence of salvarsan. Moreover, they do not believe that the toxicity of this substance is increased by the addition of bacterial toxins. In a "normal" individual the toxicity of salvarsan is practically *nil,* whether bacterial toxins are present or not. Rigors and toxic symptoms occur after the use of microbe-free saline solution. They seldom occur later than the first week or two after the outbreak of the rash, no doubt owing to the fact that, after the first invasion of the system, the great majority of the spirochætæ are rapidly destroyed by natural processes. Further, there are slight clinical differences between the "saline" rigors and those occurring in secondary syphilis after the use of salvarsan dissolved in microbe-free saline solution. This latter occurs rather later after injection, the temperature seldom starting to rise for three or four hours. This is in support of the endotoxin view, since it is noted that there is no disappearance of spirochætæ from chancres for four or five hours after injection. There is a latent period first, and then the destruction of the spirochætæ is found to run wholly with the height of the fever, so that by the time the normal limit is again attained no spirochætæ can be detected.

The elimination of the more excessive toxic symptoms by the use of bacterium-free saline solution is a matter of some value, so much so that Professor Ehrlich urges that every one who makes use of these injections should distil his own water. This is undoubtedly desirable. Commercial

distilled water is often grossly contaminated with bacteria, and the difficulties in the preparation of a certainly pure saline solution are sufficiently great to render the transfer of the responsibility of manufacture unsatisfactory. It will be clear that in the absence of toxic symptoms due to the water the slight toxicity due to the salvarsan as such will be more easily borne, and larger doses may therefore be used. For the last six months the writers have never given an adult less than the maximum (0.6 grm.) at one time. Again, the relative contraindications to the use of salvarsan lose much of their importance. The cardiovascular system is not now put to the test in any way so severely as formerly, neither is a diseased nervous system so prone to develop stormy local "reactions." The exacerbations of lightning pains, headaches, and similar symptoms in such patients have been thought to represent a "local reaction" due to the effect of "606" upon the spirochætæ; since using bacterium-free saline solution, however, they have not observed these occurrences. Therefore they consider that the chances and risks attending the treatment of tabetics and general paralytics, if such treatment is considered to have sufficient value, may be appraised less highly than was formerly the case.

It must not, however, be supposed that with satisfactory saline solution salvarsan becomes an entirely indifferent substance in every case; on the contrary, it is now more possible to recognize its own measure of toxicity. Formerly it was the general rule for the toxic symptoms to be less marked after the second or third injection. Now the authors are of opinion that such toxic symptoms as may be met with may become progressively more marked after repetition of the dose at short intervals. This, without doubt, is not the result of any process which may be described as "anaphylaxis," but simply represents the accumulative effect of large doses of arsenic. The symptoms which they have met with are usually most marked in the gastrointestinal system, and it is interesting to note that the recent work of Kochmann has shown hemorrhagic gastritis and enteritis to be the prevailing lesion in animals after fatal doses of "606." These toxic symptoms are by no means invariable, and are extremely rare after first injections.

The practical application of these principles is not devoid of difficulty. In order to insure as far as possible an absence of toxicity, the preparation of the water must be conducted with the greatest possible care. All vessels must be absolutely clean. The water must be collected direct from the still and immediately made into saline solution, and sterilized in the most complete bacteriological sense. When once a flask has been opened the contents must be used at once; remnants cannot be preserved in the ice-chest for future use.

THE PREVENTION AND TREATMENT OF VENTRAL HERNIA.

JUDD (*The Journal-Lancet,* March 1, 1912) advises against attempting to remove an adherent appendix through a right rectus incision made primarily for gall-bladder operations. It is better to make the customary muscle-splitting operation in the usual position than to prolong the gall-bladder cut downward and thus sever a nerve supply to the rectus muscle. In pelvic operations the muscles and their sheaths, respectively, should be brought together in the midline.

An incision made through the aponeurosis of the external oblique can be closed with a better degree of strength if the aponeurosis is imbricated. Under no circumstances is a split-muscle incision enlarged by cutting across the fibers of the internal oblique. If the appendix is adherent toward the midline and the exposure is inadequate, the incision is extended through the internal oblique muscle into the sheath of the rectus, not cutting the muscle fibers. This will allow retraction of the rectus nearly to the midline, greatly increasing the working space and at the same time not interfering with any of the nerves, nor will it result in a tendency to weaken the union of the wound. Occasionally the

separation of the internal oblique fibers will be a point too low for the removal of a high-lying appendix, or a cystic ovary or infected tube may be palpated just out of reach of the incision. In either instance there is a tendency in operating to make more room by cutting across the internal oblique muscle. A much better procedure, and one less likely to be followed by hernia, is to extend the incision in the external oblique muscle and make a new separation of the internal oblique fibers either high up over the high-lying appendix, or low down over the ovary and tube, as the case may require. Judd has frequently made several independent separations or splits in the internal oblique muscle, and in none of the cases was the abdominal wall weakened. Hernia rarely follows a suprapubic incision for an operation on the bladder. When it does occur, however, repair is difficult. For this reason, in operating upon the bladder, Mayo (C. H.) makes a transverse incision at a point about an inch and a half above the pubic bone. The sheaths of the recti muscles are cut transversely and dissected off from the bodies of the muscles an inch and a half each way. The muscles are then separated in the midline, but none of the fibers are cut. When the operation is completed in the bladder, the muscles are allowed to drop together, and the cut edges of the sheaths are united by sutures.

Operations for the cure of ventral hernia have been practiced for many years, although it is only within recent years that the results have been to any degree satisfactory. Up to a few years ago the recurrences as reported from the large clinics varied from 40 to 60 per cent, and, moreover, they were attended with a considerable mortality.

To remove all of the scar-tissue and to close the gap in the abdominal wall by approximating the anatomic layers, respectively, would be the ideal method of repairing ventral hernia, but the mere fact that a hernia exists means that there has been a sloughing away, or atrophy, of a part of some one or all of these layers; and for this reason the anatomic closure should not be considered. Practicing this method in the past gave a high percentage of recurrences, and a mortality which, in all probability, was due to the sudden, marked increase of the intra-abdominal pressure caused by the reduction of the hernia and the diminution of the abdominal circumference by closure under extreme tension.

The majority of these hernias occur in fleshy people, and for many years it has been Judd's custom to devote from two to six weeks' time, if necessary, in preparation for operation. The preparation consists in reducing the weight and getting rid of excessive fat. This is a help in two ways: first, in diminishing the amount of adipose tissue in the flaps to be utilized in the closure; and secondly, in reducing the fat in the omentum and mesentery and thereby lessening the increase in the intra-abdominal pressure at the time of reduction. In a great many instances Judd has been able to reduce the weight twenty-five pounds within four weeks by eliminating all carbohydrates and fats from the diet, and giving a rather effective laxative once a day. During this preparation, which is usually carried on at the patient's home, the patient is given instructions to spend several hours each day in reducing or attempting to reduce the hernia. At times this may be accomplished by elevating the foot of the bed, and if the reduction can be brought about, the patient is not subjected to the sudden increase of abdominal pressure at the time of operation. It is very important to bear in mind that the large pieces of omentum and coils of intestine which have been in the hernial sac outside the true abdominal cavity for a long period of time have lost their normal habitat in the abdomen, and that to force them back suddenly might cause very serious trouble.

In operating upon abdominal lesions the writer and the Mayos have observed repeatedly the rapidity and strength with which the peritoneum heals. We cannot drain the general abdominal cavity for more than a few hours by a foreign drain of any kind, because the foreign substance

introduced into the abdominal cavity is very quickly walled off from the rest of the cavity by the union of the peritoneal coats of the abdominal organs. An incision through the peritoneal surface of the bladder will invariably close up without urinary leakage, although a suprapubic incision not through the peritoneum, though carefully sutured, will frequently drain urine for a time. Until quite recently it was believed to be necessary to sew the gall-bladder to the peritoneum when doing a cholecystostomy, in order to prevent leakage of bile when the drain was removed. In recent years it has been customary to stitch a tube in the gall-bladder and allow it to drop back to its normal position, knowing that the tube would be completely surrounded by adhesions within a few hours from the rapidly healing peritoneum, and in case the tube should come out, a complete sinus would be made from the gall-bladder to the skin, which would carry the bile to the surface.

It was not until Judd fully appreciated the reparative powers of the peritoneum that he began to utilize it to the best advantage, and as an end to simplify the operative technique in repairing these hernias. For years he and the Mayos have employed the principle of overlapping tissues whereever there was any difficulty in uniting wound edges, and until quite recently this overlapping was accomplished by flaps of fascia after the peritoneum had been closed. It was not an easy matter to dissect the peritoneum from the other tissues, and usually by the time it was freed each flap had been buttonholed and torn in several places, and they could not be closed with any degree of accuracy or strength.

Having observed the marked reparative power of the peritoneum in other locations, it follows naturally that we should adopt the simplest and easiest method to repair these hernias—that is, to make the autoplastic flaps of peritoneum, muscle, fascia, and scar-tissue, as the case may be, and to overlap all of these layers as one flap on to a similar flap of the opposite side. In this way the peritoneum of one flap is approximated to the aponeurosis and scar-tissue of the other flap. The method of choosing the flaps and the manner in which they are to be placed must depend upon the individual case. The overlapping may be from side to side, from above down with either flap outside, or it may be placed obliquely. This is a point which should be determined after the hernial contents have been reduced and the flaps measured up.

The steps of the operation are as follows:

First, removal of the old skin-scar.

Second, clearing the fat from the fascia for two inches in all directions.

Third, dissecting the neck of the sac free from the aponeurosis.

Fourth, opening the peritoneal sac and freeing the adhesions for at least an inch inside the hernial opening. Under no circumstances is there a sacrifice of any of the scar-tissue or excessive tissue of any kind except the fat.

Fifth, no attempt is made to separate the flaps into anatomic layers, but the most convenient way of overlapping the flaps one upon the other is chosen, the peritoneal surface of one flap lying on the aponeurosis of the other. If the hernia is wide and gaping, several large mattress sutures of linen or chromic catgut are passed through the pedicle of one flap and the free edge of the opposite flap. The peritoneal surface at the pedicle of the overlapping flap is then stitched accurately to the aponeurosis of the opposite flap.

Sixth, the free flap is now allowed to drop on to the aponeurosis of the opposite flap and is stitched accurately in place. Very careful hemostasis is most essential. In case there is any serum or a great deal of fat, it is best to drain either through the end or through a stab-drain.

During the past seventeen years the Rochester clinic has operated upon 242 postoperative ventral hernias. One patient died from acute dilatation of the heart on the second day, and thirteen are known to have had recurrence.

In the ordinary case, fifteen to eighteen days in bed give ample time for healing. It has been the custom to advise against

wearing any truss or bandage which will make direct pressure upon the wound area. It is not believed that an appliance of this kind will prevent recurrence, but rather that it will have a tendency to push apart the flaps which we have imbricated, and that it would also, by pressure, interfere with proper circulation and healing in the tissues. These patients are made much more comfortable, especially the fleshy individuals, by wearing a general abdominal binder which does not make direct pressure at any point.

MANAGEMENT OF THE OPENING IN THE TRANSVERSE MESOCOLON IN COMPLETING THE OPERATION FOR POSTERIOR GASTRO-JEJUNOSTOMY.

MAYO, WILLIAM J. (*Annals of Surgery*, March, 1912), notes that the opening made in the transverse mesocolon through which the stomach is brought out posteriorly in the operation of gastrojejunostomy was originally closed by fastening the torn margins with several sutures to the posterior wall of the stomach at some little distance from the gastrointestinal anastomosis. The later omission of these sutures proved to be unfortunate, since in at least one case six feet of small intestine herniated through the opening into the lesser cavity of the peritoneum on the twelfth day, and a second operation was required for the relief of the intestinal obstruction.

For some years the Mayos in performing gastroenterostomy have turned the margins of the opening under and sutured the peritoneum of the lower surface with three or four stitches to the suture line which unites the stomach and jejunum. This technique has proved very satisfactory. There were, however, two cases in which a fat transverse mesocolon sutured in this way caused secondary trouble because of adhesions forming in a collar-like mass around the stoma, and cure was not obtained in either case until the second operation was performed, in which the margins of the transverse mesocolon were dissected free and united to the stomach at a distance of an inch from the suture line of the gastrojejunostomy.

Fastening the margins of the opening in the transverse mesocolon to the gastrojejunal suture line by several sutures and neatly tucking the edges underneath so there will be no raw surface to become adherent is an excellent practice and suitable in the large majority of cases. In the occasional case, however, in which the transverse mesocolon is quite fat, there is danger that adhesions will form, and this technique should not be adopted in these cases, but rather the old method of suturing to the posterior wall of the stomach three-fourths of an inch away from the gastrointestinal anastomosing suture line.

WOLFE'S SKIN-GRAFTING.

EVANS (*Practitioner*, December, 1911) states that Wolfe, an ophthalmic surgeon, devised his method for the purpose of supplying a new eyelid. His first patient had very great eversion of the lower lid as a result of an explosion, and the eversion was so great that Wolfe felt sure that no ordinary method would suffice for a cure. He therefore took from the patient's forearm a flap which was two inches in length and one inch in breadth. The graft was laid on the site prepared for it; it soon became adherent, and the result was a great success. Here we have a very good example of the kind of case especially suitable for Wolfe's operation, for a new lid must be firm and yet freely movable.

The cases, then, for which Wolfe's grafts are especially indicated are those in which a firm, thick, healthy mass of skin is required. Next we have to consider how long grafts will survive when cut off from their blood supply. Martin, in 1873, experimented with pieces of human skin, and found that some of them retained their vitality for ninety-six hours even when exposed freely to the air, and that other portions confined in tubes at a temperature a little above freezing point survived for twelve hours longer. It has been definitely shown by these and other experiments that

portions of the human skin may survive for many hours after removal from the living body, and therefore the short interval, generally much under half an hour—in fact, usually only a few minutes—required in operations, is amply sufficient for the implantation of the graft. For its further survival, until it shall have contracted adhesions to the living tissues, the vitality of the graft has been found by practice to be amply sufficient.

The source of the graft has not to be considered. It may be taken from the patient himself, from some part where the skin is loose, so that the edges of the wound made may be easily drawn together. A convenient source is the patient's abdomen, where it is usually not difficult to remove a fold of skin, and yet the wound so made can be readily closed. A very convenient source is the prepuce removed in the operation of circumcision in children; it has great vitality and serves well in cases in which a supple skin covering is needed. Sometimes it will be possible to obtain the grafts from an amputated limb.

When the graft is removed from any other than the patient himself it is essential that every care should be taken to ascertain that the giver of the graft is not suffering from any constitutional disease. Grafts taken from young persons appear to have a higher degree of vitality than those taken from the old. The graft must be at least a third larger than the cavity it is intended to fill, and it is well to bevel the edge at an angle of 45°. After the graft has been cut it should be turned upside down and all fat removed from its under surface, but it is important that the under surface should not be injured. The site for the reception of the graft must be prepared. It should be as free from germs as possible, but no antiseptic must be employed. Granulations should be scraped away, and it is well that the base should not be fat. The edge, if hard and avascular, should be cut away, and the edge of the area left should be a little undercut, at about an angle of 45°, so that the graft may fit into it as a watch-glass fits into its rim. This will help to hold the graft in position and will minimize the scar. A few catgut stitches may be inserted if the flap has any tendency to fall from its position, but they must not be tight. A gauze dressing is then applied and gently fixed with a bandage. The writer does not think that rubber tissue is needed for the graft, but if it is used it must be perforated. The surgeon must guard against all undue pressure. The dressing should not be disturbed for ten days or a fortnight, and even then it is generally sufficient to change the outer part of the dressing.

The general health of the patient is naturally of great importance, and no grafting operation should be undertaken if syphilitic manifestations have been present recently or until the disease has been thoroughly treated. Success in the use of Wolfe's grafts depends mainly on care in the choice of the grafts and on avoiding all undue pressure and tension. In suitable cases the results of their employment far surpass the best results from Thiersch grafts.

TREATMENT OF FRACTURES.

HITZROT (*Annals of Surgery*, March, 1912) concludes an excellent study of this subject, illustrated by many cases, as follows:

That method of treatment which offers the patient the most satisfactory functional result with the least danger should be the method of election in the treatment of the great majority of simple fractures. The method which most nearly fulfils the above requirements is the non-operative reduction of fractures. The more experienced the profession becomes in the handling of fractures the better the results will be. Operation must be considered not the method of election, but the method of selection for a carefully chosen group of cases, and that in selecting the types for operation each case must be considered a law unto itself.

GIBBON in an excellent study in the same issue considers that our aim should be to overcome the indications for open treat-

ment by a perfection of our mechanical measures, and to obtain better results when we must operate by improving our operative technique. He holds, and justly, that there are probably but few surgeons who operate upon fractures with the same impunity and confidence that they perform other surgical operations of an apparently more serious nature. If this is true, it behooves us to know the reason. First, the required mechanical skill is of a different sort from that necessary to the successful performance of most of the surgical operations, even of the most delicate character, and this is acquired only by careful study of the methods in vogue and by much experience; again, more care is necessary in this field than in any other to avoid infection, as we are dealing with a tissue, the medullary portion of the bone, whose resistance is slight; and still further, it may be said that failure of the operation often leaves the patient in a worse state, a greater cripple, than if no operation had been done.

No one realizes these facts more fully than he who does the greatest amount of work in this field, and consequently when we are inclined to imitate his accomplishments we should see that we are equipped at least to some extent as he is. By equipment the author does not mean the special instruments, which are, however, most essential, but rather ability to meet and deal with difficulties, and an aseptic habit and an environment which can be relied upon. If we could feel the same assurance regarding aseptic wound healing in fractures as we do in abdominal operations, half of the difficulties of this work would be overcome, and our results would be ten times better than they are at present.

We are apt to minimize our percentage of infections in any type of operation, but Gibbon asks a careful study of our own cases and the perusal of any honest report by others, and we will then find that this important question of infection takes first rank when it comes to the open treatment of fractures. In a recent article on this subject, Lund, modestly describing himself as a beginner, reports eleven cases in which he has used the Lane plate, and in four of these he was obliged to remove the plate. If a man of his experience and ability finds this work difficult, it then behooves those with less experience and ability to move in this field of surgery with judgment and precaution.

OPERATION FOR THE RELIEF OF ELEPHANTIASIS OF THE SCROTUM.

The various operations for elephantiasis of the scrotum which have recently been devised show considerable ingenuity, but their very number suggests the want of one method which is entirely satisfactory. In a recent publication (*Finska Laekaresaellskapets Handlingar,* November, 1911) Professor Ali Krugius has described a procedure which he found eminently successful after a number of other methods had failed, but he does not claim to have solved the difficulties which various forms of scrotal elephantiasis may present. The patient was a lad of 19, who had developed elephantiasis of the scrotum two years before, when he had been seized with rigor, headache, and general malaise, the cause of which was obscure. The swelling of the scrotum had increased, and had at last forced the patient to keep to his bed.

After several months in hospital there was little improvement effected, although drainage of the scrotum had been attempted by the transplantation of a portion of the saphena vein to the scrotum, within which its lower end was fastened, while its upper end communicated freely with the loose subcutaneous tissue over the pubes. Capillary thread drainage was also ineffective, and after the scrotum had been amputated the skin which had been drawn together over the testicles became so edematous that a new scrotal swelling was formed with embarrassing dimensions.

As a last resort an attempt to drain the swelling by means of the lymphatics of the spermatic cord was decided on, as these lymphatics are not as a rule involved in elephantiasis. An incision was made over the left inguinal canal, through which the cord was exposed and the testicle drawn up.

The tunica vaginalis was divided in front and turned inside out so that its lining came in direct contact with the lymph in the scrotum which it was intended to drain. The eversion of the tunica vaginalis was maintained by its free border being carried up the spermatic cord, to which it was secured by ligatures. The scrotal swelling rapidly grew less, and had almost disappeared when the patient insisted on returning home.

The above operation had been performed for varicocele, but not on the same principles or with the same object. Should there be obstruction to the passage of lymph by the lymphatics of the cord, Professor Krugius suggests utilizing the large omentum, the absorptive power of which is considerable. In order to carry the omentum into the scrotum, a plastic operation would be necessary, by which a strip of the omentum would be cut long enough to reach the scrotum without dragging on the upper attachment of the omentum. This is, however, rather a drastic alternative, as it implies an extensive abdominal operation, and it is therefore only advocated in case of the failure of other and less dangerous methods.—*British Medical Journal,* April 13, 1912.

TREATMENT OF HEART WOUNDS.

Pool (*Annals of Surgery,* April, 1912) records a case of attempted suicide by means of a stab, exhibiting profound shock, with the pulse imperceptible at the radials, heart sounds indistinct and muffled, increase of cardiac dulness, and a wound half an inch in length in the fourth intercostal space close to the upper border of the fifth rib and just mesial to the nipple. The wound was extended along the upper border of the fifth rib toward the sternum, crossing and dividing the cartilage near its insertion. The heart was exposed by a trap-door, incision being carried upward along the sternum, thence outward along the lower margin of the third costal cartilage. The cartilages of the third and fourth ribs were divided close to the sternum, the third being readily exposed by retracting the soft parts upward. The two cartilages were then carefully lifted, separated from the pleura, and fractured at the costochondral junction, forming a flap with skin and muscles attached. The internal mammary was clamped and ligated above and below when exposed. The opening in the pericardium was enlarged by an incision upward near the sternum, making a triangular flap. Hemorrhage was very free; the operative field was a lake of blood in which were churned bubbles of air. A rent in the heart was found which admitted the tip of the index-finger. It involved the left margin of the heart somewhat posteriorly and half an inch in length. Five stitches were inserted and tied before the bleeding was entirely controlled. Through the drainage tube much clear serum was discharged for several days. Recovery was uneventful.

Attention is called to the fact that there is no distinct clinical picture whereby a wounded heart can always be diagnosed, especially in the first few hours after injury. The classical syndrome, "heart tamponade," due to intrapericardial pressure, is more often absent than present. Physical signs in the cardiac region, such as abnormal sounds and increased dulness, are frequently inconclusive, nor are the position and direction of the surface wound always convincing. Prognosis by reason of hemorrhage and shock becomes progressively worse as the interval between the trauma and the operation lengthens. The immediate results of non-operative treatment are very poor as compared with those obtained by operation. Even though the heart wounds heal without surgical intervention, there is always danger of secondary hemorrhage from an unsutured wound, and the spontaneously healed heart wound, even a non-perforating wound, leaves a weak scar which may rupture or become the site of an aneurism.

As to technique careful preparation of the operative field is essential, since many cases which have survived shock and hemorrhage have died later as a result of infection. Experience indicates that anesthesia should consist in the sparing administration of a

general anesthetic, preferably ether, when the patient shows signs of sensibility. The indications for differential pressure are so striking as to induce its employment; it has become possible for every hospital to be provided with facilities for the use of differential pressure, even if elaborate apparatus, such as those of Janeway and Elsberg, are not available. Therefore, the applicability of differential pressure in operations for wounds of the heart will doubtless be thoroughly tested in the immediate future, consequently this detail deserves careful consideration.

A majority of the cases of heart wounds are complicated by opening of the pleura; Sauerbruch puts the figure at 80 per cent. Even if not opened by the original wound, experience shows that the pleura is usually torn during the course of the operation. Pneumothorax with collapse of the lung is therefore likely to occur in every case. But the immediate dangers due to pneumothorax can be eliminated and the late dangers minimized by the use of differential pressure. Therefore, differential pressure permits a disregard of the pleura, and consequently expedites the operation by allowing a free transpleural exposure; moreover, it greatly diminishes the tendency to postoperative infection, by allowing dilatation of the lung and consequent absence of pneumothorax following the operation. Other less important advantages of differential pressure are that it increases oxygenation of the blood, improves the heart action, makes the technique of the heart suture easier in that it lifts the heart and renders it more accessible, at the same time removing the annoying respiratory movements, and, finally, assists in the discovery of a wound of the lung so that it may be sutured.

There are some considerations which indicate great care in the amount of pressure used during the first stages of the operation. Sauerbruch and Haecker found in animal experiments that at first a pneumothorax leads to a diminution of heart activity and lessens the bleeding from the heart. On the basis of these findings Matas discourages the use of differential pressure until the heart has been sutured, because he considers that a collapsed lung may be an advantage by diminishing the bleeding. But Sauerbruch and Haecker state that in their experiments continuation of the collapsed lung led to such depression of the heart as to render it necessary to dilate the lung in order to save the animal, and Sauerbruch believes that low pressure, such as 3 mm. Hg, does not increase the bleeding. Therefore, although Matas's warning should be borne in mind, it seems probable that differential pressure, in view of its marked indications, may be used throughout with advantage, danger from increased hemorrhage being averted by a rapid exposure and rapid control of hemorrhage, pressure being reduced to a minimum until bleeding has been controlled. Possibly insufflation of oxygen will prove an advantage in this connection, since it can be used under much lower pressure than is necessary to give the same effects with air.

The question of exposure of the heart is greatly simplified if it is recognized that an extrapleural cardiorrhaphy is rarely possible, and if dependence is placed upon differential pressure for controlling the dangers of pneumothorax. The principles of exposure by which almost all indications can be met most satisfactorily are the intercostal incision, the osteoplastic flap, and the extrapleural exploratory pericardiotomy.

The intercostal incision, as Wilms states, affords free exposure of the heart, can be applied more quickly than a flap operation, and causes less hemorrhage, while the resulting pneumothorax cannot be urged against the method since it is rarely possible to avoid its occurrence by other procedures. It should be elected when differential pressure is used, when pneumothorax is already present, or when the condition of the patient makes speed of primary importance. A long intercostal incision placed in the fourth space gives the best exposure, although other spaces may be used. The proper application of this incision necessitates opening the pleura freely; forcible retraction then gives considerable exposure.

As in all methods, the internal mammary must be ligated above and below when exposed. After opening the pericardium in the line of incision, if more space is desired, it may be obtained by cutting away part of the sternum and by section near the sternum of adjacent rib cartilages with or without incision of the soft parts upward or downward.

Although the preservation of the pleura, as Rehn points out, is a distinct advantage, it should be aimed at only in selected cases, since the effort delays the operation and usually fails. The circumstances which warrant an effort toward an extrapleural operation are: differential pressure not available, pneumothorax not present, no wound of the pleura such as would render the effort useless, adequate assistance, and relatively good condition of the patient, for when the condition is grave it is important to adopt the simplest and quickest method and to lose no time in attempts at elaborate extrapleural procedures.

Certain flap methods afford good exposure and offer the best prospects of preserving the pleura intact, when such an effort appears indicated. A flap with lateral base has proved the most satisfactory both in operations and experimentally on the cadaver. A flap, as planned by Kocher, gives admirable exposure. An incision of about 10 centimeters is made from the middle of the sternum along the sixth left costal cartilage, which is carefully resected after separating the perichondrium; the pleura is exposed and stripped outward; an extrapleural exploratory pericardiotomy is then possible. From the inner end of this incision, a vertical incision is carried upward on the sternum as far as is indicated, even to the third rib; a third incision of 8 centimeters is carried horizontally outward. A flap of the fifth, fourth, and, if necessary, third cartilages is lifted, separating and stripping the pleura outward. The cartilages are broken at the costochondral junction. In the event of a small wound being made in the pleura, an effort should be made to limit the entrance of air into the cavity by protecting the hole with gauze; a large wound must be disregarded. This method not only gives a good exposure but permits satisfactory primary or secondary drainage in a dependent part of the pericardium and the part uncovered by pleura. Yet for some cases it would carry the exposure unnecessarily low. Therefore, in high wounds a simpler and more suitable procedure may be used by omitting the resection of the sixth cartilage and forming a flap appropriately placed with pedicle outward of two or three rib cartilages, especially the fourth, fifth, and third.

In certain doubtful cases the primary incision may be designed for exploration. The original wound, if situated in the precordial region, may then be extended and deepened layer by layer, its edges being excised. If the wound is not in the precordial region, in the absence of differential pressure an extrapleural exploratory pericardiotomy may be used advantageously. For this, resection of the sixth cartilage, as in the first step of Kocher's procedure, is to be recommended. In the rare condition of a wound of the right side with right pneumothorax, the exposure of the heart must be planned to avoid opening the left pleura, especially when differential pressure is not used. Partial resection of the sternum is then indicated.

After exposure of the heart, if any difficulty is encountered in locating the wound, or if hemorrhage is excessive, the method suggested by Sauerbruch and Haecker may be advantageously used: the left hand is inserted so that the right auricle with its entering vessels lies between the third and fourth fingers, while the thumb and index-finger grasp the lower portion of the heart and luxate it upward; this, they say, serves to bend the vessels and control bleeding, while at the same time the heart wound is rendered accessible. Rehn suggests controlling hemorrhage by compressing the inferior and even the superior vena cava with the fingers of the left hand.

For suturing the heart the interrupted silk suture, well vaselined, has much to commend it, in that it offers a finer material, which causes the minimum of trauma,

is well tolerated, allows the knots to be tied more securely, and is not loosened by subsequent softening of the suture material at the knots. In a case of wound of the left ventricle reported by Schoenborn, catgut sutures were used, and were found at autopsy a few hours later so loose that they probably would have given way.

After the controlling stitch has been placed, it should not be difficult in most cases to insert the remaining stitches. In the author's case this was done quite easily by having the assistant draw on the first stitch with one hand and control the bleeding by pressure with a finger of the other hand; for each subsequent stitch this finger was momentarily lifted. It was found impossible to differentiate between systole and diastole in tying the sutures, and case reports show this to be a common experience. The suture should not penetrate the heart wall, yet reports indicate that in thin-walled portions of the heart it is impossible to determine accurately the depth of a suture. Occasionally, as in cases reported by Neumann and E. Hesse, cardiorrhaphy is unsuccessful on account of friability of the heart muscle and persistent cutting through of the sutures. In that case the latter recommends cardiopericardioplasty.

JEJUNOSTOMY.

MAYO, W. J. (*American Journal of the Medical Sciences,* April, 1912), regards jejunostomy as an operation of considerable usefulness; it gives rest to the stomach and maintains good nutrition. The operation is an active competitor of gastrostomy in cases of esophageal and cardiac obstruction, and in extensive ulcers which cannot be excised and gastrojejunostomy is not feasible it is a most valuable procedure. In malignant diseases of the stomach of the ulcerous type it offers a means of palliation.

The technique of jejunostomy is simple and easily carried out. The abdomen is opened by an epigastric incision either in the midline or to the left in the rectus muscle. The jejunum is picked up and, selecting a point from twelve to sixteen inches from its origin, a loop is drawn out of the abdomen, nicked on the convex surface, and a No. 9 (English scale) rubber catheter pushed through the opening down stream until it extends about three inches inside the lumen of the jejunum. This point is fixed in position by a single chromic catgut suture; the catheter is then infolded by the jejunal wall for an inch or an inch and a half by mattress sutures of linen after the plan of Witzel. The intestine is anchored to the peritoneum by two or three linen sutures in the lower angle of the incision, which is closed down to the tube in the usual manner, or the end of the catheter can be brought out of a small stab wound at one side of the incision, the intestine being fixed to the peritoneum on the inside by several linen sutures.

Liquid feeding may be commenced at any time and carried out for an indefinite period without danger of leakage and with a certainty that the nutritive material will pass into the assimilative tract. Leakage does not follow the removal of the tube, but if it should slip out accidentally it must be replaced within twelve hours or the tract may become obliterated. All kinds of fluid nourishment are borne well in these cases—preparations of milk, eggs, meat ground fine and mixed with fluid, carbohydrates in fluid form, etc.

In cases of esophageal and cardiac obstructions, and in diseases affecting a considerable portion of the wall of the stomach, rendering gastrostomy impossible or difficult, jejunostomy is as efficient and easier of performance than gastrostomy. It is in extensive ulceration of the stomach that jejunostomy has its greatest field of usefulness. Sometimes the stomach contains multiple ulcers, either simple or specific, in which temporary rest is indicated and gastrojejunostomy is impracticable on account of the extent of the disease. In these cases jejunostomy affords needed rest to the stomach, a condition, it is true, which can be brought about by rectal feeding, but this procedure can in no sense be considered a building up process; it is useful only as a temporary expedient to prolong life.

On the other hand, jejunostomy improves the nutrition of the patient; a gain of from ten to thirty pounds can be easily made without resorting to forced feeding.

In this hypernutrition, with rest to the stomach, lies the secret of the remarkable results following jejunostomy in some cases of extensive gastric ulcers. One sometimes finds a large ulcer of the stomach so adherent and extensive and situated so high in the body as to render gastrojejunostomy not only hazardous, but open to the serious objection that it must be made distal to the ulcer. In such cases jejunostomy is a rational procedure, and even if the ulcer be malignant in character the method furnishes a useful means of palliation.

It sometimes happens, after the excision of a large ulcer of the stomach, that the organ is not in a safe condition to hold food. This is especially true of large ulcers of the posterior wall. The patients are often so debilitated that improvement in nutrition is almost a necessity in order to obtain union. Jejunostomy furnishes an easy, safe manner of giving the stomach rest during the healing process; the patient is relieved of the danger of leakage and adequate nourishment is maintained.

TREATMENT OF SEPTIC ABORTION.

HAUPT (*Cleveland Medical Journal*, March, 1912) notes that about 25 per cent of abortions become infected, and of these about 10 per cent die. Some abortions terminate spontaneously with complete expulsion of the ovum and the entire decidua. The earlier in the first half of a pregnancy an abortion occurs the more likely is this to be the case. Rest is the only treatment indicated. More than half the cases are associated with hemorrhage or infection. There is no doubt as to the efficacy of cervical or vaginal packs in promoting evacuation of the uterus and checking hemorrhage. But Klengel records that fully one-fourth of abortion cases develop infection when tampons are employed, as against only 17 per cent when no tampons were used, this when the packing was done under the strictest antiseptic conditions. It therefore appears that packing is not altogether a harmless procedure.

There can be no justification in curetting every abortion case without any particular reason for so doing, except that the patient has aborted. It is true, however, that the uterus should be carefully and completely emptied, whether digitally or by means of a blunt instrument, in the presence of a serious hemorrhage, whether the patient is septic or not. In the presence of a virulent infection the expectant plan of treatment offers the best results. Following out this plan of treatment the patient should receive twice daily a hot saline or bichloride douche. The douche serves the double purpose of cleansing the vagina and promoting contraction of the uterus. Ice-bags should be applied to the hypogastrium and the bowels should be emptied. The writer employs elixir of iron, quinine and strychnine as a general measure. He allows a rather liberal diet. The patient is placed in the Fowler position to promote drainage from the vagina. He has had no experience with vaccines or serums, for they do not seem to be recommended in acute septic conditions.

When the temperature has returned to normal or thereabouts and remains so for two or three days, the uterus may be safely evacuated.

INTRATRACHEAL ANESTHESIA.

WOOLSEY (*New York State Journal of Medicine*, April, 1912) notes that we have in tracheal insufflation anesthesia, tracheal respiration with elimination of any possible anoxyemia from external respiratory obstruction, with absence of all embarrassment of respiration, as from differential pressure cabinets we furnish constant minimum dosage of anesthetic vapors at lowest concentration, induce no serious degree of acapnea, provide against hypercapnea and for complete oxygenation; we render intrathoracic surgery possible through prevention of acute pneumothorax.

Thus far this subject has been considered from an optimistic and supportive point of

view; there have been reported, however, and there certainly exist, damaging factors in tracheal insufflation if the technique is in any way faulty. No complicated surgical problem exists, but experience has shown that early efforts were at fault, and only in observing those faults has progress been attained.

Five patients have died, to Woolsey's knowledge, after intratracheal insufflation and more or less serious operative procedures—the first after a tumultuous induction of anesthesia by the hospital interne, relieved by the tracheal tube, the anesthetic being carried on for fifty minutes with satisfaction. After withdrawal of the tube the patient's efforts at respiration were not resumed with a sufficient degree of regularity to prevent anoxyemia, from which he died. Autopsy showed eight-tenths of his lung tissue involved by a general miliary tuberculosis, and the complete aeration of the blood during narcosis must have been carried on with a markedly limited absorbing surface.

The second case was cancer of the esophagus, adherent to the root of the lung glands along the aorta. Through a mistake in technique a small quantity of liquid ether was forced into the air-carrying tube and into the lungs. Death from bronchopneumonia occurred twenty-four hours after operation.

The third case was an uneventful anesthesia, but postoperative pneumonia developed on the fourth day.

In the fourth case the fatality was due to the erroneous introduction of the tube into the left bronchus and because of the temporary discarding of the safety-valve and manometer. The lung was distended to the point of rupture. A similar accident happened in Boston to a case in which, because no safety-valve was used, spasm of the glottis shut off the return flow of vapor without means of noticing the same, and pulmonary rupture was the result. In still another case in which death was characterized by rapidly increasing cyanosis and emphysema of the tissues in the anterior part of the neck, it is supposed that there must have been an abrasion of the tissues in the neighborhood of the glottis, with resultant interstitial emphysema of an obstructive nature.

Two methods of introduction of the tube have been in use—that of direct inspection through a Chevalier-Jackson laryngoscope, and by means of a specially constructed introducer in which the tube is threaded through a tunneled urethral sound with an O'Dwyer curve to hook over the arch of the tongue; the tubation of the trachea being done in a manner similar to intubation for diphtheria.

The tube should be 22 F. for most adults, occasionally 24 in thoracic cases, to insure a return flow of air not too great for the maintenance of sufficient intrapulmonary pressure. If the tube is so small as not to provide for sufficient pressure to keep the lung inflated when the chest is open, according to the suggestion of Meltzer pressure just below the thyroid notch every few minutes will remedy the defect. The point for pressure is not above the thyroid notch nor below on the trachea, but at the middle of the thyroid cartilage.

The principal features of any practical insufflation apparatus are the air supply, either a foot-pump or electric motor or both, a water-containing reservoir through which the air passes, an ether-containing reservoir over or through which the air passes to obtain its varying percentages of ether, a safety-valve and manometer which registers the internal pressure of the apparatus and of the lung and allows exit to any increase of pressure above a definite point. Air filters, air warmers, etc., add to the luxuries of perfection and seem advisable. The original apparatus as used by Dr. Meltzer was simple indeed compared to modern developments, and though such simplicity has its faults, compactness of apparatus and limited cost are desirable.

Tracheal insufflation is particularly serviceable in intrathoracic cases in which it is positive intrapulmonary pressure prevents acute pneumothorax; in that class of cases in which the obstruction to breathing exists in the airways between the teeth and

trachea from collapsed alæ nasi, recedent jaw and tongue, paralyzed soft palate and glottis, and in which narcosis is ordinarily maintained despite serious anoxyemia.

In those subjects whose factor of safety is lowered by age, disease, etc., the grave risks of surgery, in whom the minimum dosage and perfectly laborless respiratory exchange of tracheal insufflation draws less than other procedures on the narrow margin of safety that such cases possess.

In all operations about the oral or nasal cavities of serious nature where aspiration of blood and tumor material would be a dangerous factor.

Woolsey has particularly devoted himself to utilizing nitrous oxide and oxygen through the tracheal tube. These two gases are becoming more and more efficient as general anesthetic agents as the elements of light positive pressure and reduced continuous flow of gases are introduced into the technique of their exhibition.

Boothby and Cotton of Boston reported the first and only case of narcosis by the use of nitrous oxide and oxygen intratracheally.

This suggested to Woolsey the possibility of utilizing these agents by the tracheal route. Nineteen have been thus anesthetized with ether initiation, and varying quantities of ether in the first six or seven. Finally with less ether until, after the initiation of the narcosis with ether and a small amount to deepen the anesthesia at the very outset of the narcosis, the rest of the operation has been carried on under nitrous oxide and oxygen alone. No intrathoracic surgery has been attempted under this form of narcosis. The apparatus approved has been a simple crude two-bottle affair, one bottle containing water, a mercury manometer and safety-valve in its rubber cork, and three afferent tubes, one for the conveyance of air from the foot-pump through the water, the second for nitrous oxide, the third for oxygen. One efferent tube conveys the gas after it has bubbled through the water over to the second bottle, that for ether. A valve on the top of the ether bottle provides for the stream of air or nitrous or oxygen, as the case may be, going either all through the ether or all direct across, or any proportion either way. This allows the air to pick up as much or as little ether as is desired, or none, and likewise the mixture of nitrous oxide and oxygen to take up the amount of ether necessary. When air is not in use a stop-cock on the air afferent tube must be turned off in order to prevent the extremely disconcerting accident of all the water from the bottle backing up into the pump.

LEG AMPUTATIONS FROM THE STANDPOINT OF UTILITY.

THOMPSON (*Virginia Medical Semi-Monthly*, March 8, 1912) on the basis of an experience obtained in the National Soldiers' Home states that the most satisfactory legs to-day are made of willow. They hold their shape forever and are lighter than those made of any other material. The first leg worn should always have a thigh corset attached, not so much to assist the stump in bearing the weight of the body as to guide it in its socket and to relieve it of side strains. The ideal stump is seven to eight inches in length, large at the joint and rapidly tapering toward the end. It should be free from all adhesions, the skin being movable at all points, and containing as little scar tissue as possible, and that only on the end.

Many of the methods devised for amputating are entirely unsuited to the wearing of an artificial leg, and are therefore to be avoided by the modern operator.

Circular skin flaps have been used. With this flap a smooth end is impossible. There will be considerable puckering at the edges and adhesions at the center will most likely occur.

A large posterior skin flap, while it gives a smooth end has this marked disadvantage: The line of union will extend across the tibia just above its end, and the skin of the flap being considerable thicker than that to which it is united, a marked ridge will be the result. The skin covering the tibia, above all other portions of the stump, must

be free from scar tissue. The posterior muscle flap has all the disadvantages of the posterior skin flap, besides giving a large flabby stump at the very place where it should be smallest. If a stump is larger at the end than it is a short distance above, a pulling sensation will be experienced each time the artificial foot is raised from the ground.

The operation which gives the best stump from the standpoint of utility is the bilateral skin flap. The incision should begin about seven inches below the knee-joint and one inch external to the crest of the tibia, ending about one-half inch internal to the median line on the posterior surface, the internal flap being slightly longer than the external. By following this procedure, the line of union, instead of extending across the end of the tibia, will lie between the ends of the two bones, thereby reducing to a great extent the tendency toward adhesions at this important point. The flaps, consisting of skin and subcutaneous tissue, should be dissected back to the point of the beginning of the incision and the muscles divided straight across.

Periosteal flaps should be made for both bones, the tibia finally being amputated on a line with the muscles, the fibula about one-quarter inch higher up. Care should be taken that the edges are smooth and that the internal and anterior edges of the tibia and the external edge of the fibula are slightly beveled.

The arteries being ligated with ten-day catgut and the nerves pulled down and divided as high as possible, the wound is then closed with interrupted sutures. Drainage consisting of a few strands of catgut or a very small wick of gauze should be inserted for about one inch in the posterior end of the wound to prevent the possible formation of clot. This may be removed about the second day, the stump being kept in an elevated position for one week.

The healing of the wound by first intention is imperative. By using the utmost precaution to prevent sepsis and clot formation this result can be readily obtained, and the percentage of adhesions will be very small.

This operation is not a hard one to perform, and can be done well by any surgeon who can do any other operation well.

A PLASTIC OPERATION PROVIDING A NEW SPHINCTER ANI.

MANTELLI (*Giorn. d. r. Accad. di Med. di Turin*, 1911, lxxiv, 347) treated a patient who was in a wretched condition with widely patent anus incident to operation for fistula by forming a new sphincter. With the patient on his face and his thighs widely abducted two incisions were made, each starting at the level of the coccyx and two fingerbreadths outside the middle line, descending vertically 4 inches, then running down and out to the linea aspera about four fingerbreadths below the summit of the great trochanter. The lower and internal borders of the glutei maximi were then carefully exposed, and from them were isolated stout sections, the thickness of a large thumb. These were separated from their insertions into the linea aspera and up to the point where the nerves supplying them entered. The skin around the anus was then tunneled freely, leaving bridges of skin to the right and left, and two skin bridges in front and behind. The new sphincter was then formed by passing the section of the right gluteus through the posterior tunnel and round the left side of the anus; the strip of left gluteus was similarly passed through the posterior tunnel and round the right side. Thus the two strips crossed behind the anus, and their free ends were sewed together inside the tunnel passing in front of the anus. The cutaneous incisions were then sewed up with silk. A month later the patient had a completely continent sphincter, and four months after the operation the anal function was normal.

Great care was taken not to injure the isolated strips of the glutei during the operation; many vessels bled and had to be ligatured. The author points out that Schömacher did not make the two strips of

glutei cross each other; so that the sphincter produced by such an operation would naturally be less efficient than Mantelli's. In addition, Schömacher's operation demanded that the two muscular strips should be sewed together in two places, behind and before, thus increasing the injuries to which they are necessarily exposed in the operation.—*British Medical Journal,* April 20, 1912.

TILTING THE SOLES OF THE BOOTS, AND ITS USE AS A MEANS OF TREATMENT IN VARIOUS COMMON CONDITIONS.

COTTERILL (*Edinburgh Medical Journal,* February, 1912) contributes an article on this subject because he believes that it is not as widely known as its merits deserve, and also because the application of the treatment is very simple and yet extremely efficacious. An external wedge is used at times for intoeing and an internal one for outtoeing. Mr. Robert Jones applies separate wedges to the heel and sole, raising the whole length of the heel, but only applying a small wedge to the sole so that the flexibility of the part is not interfered with. Instead of completely filling in the waist where the ordinary short heel does not sufficiently support the foot the heel is lengthened, and, if necessary, at the same time slightly broadened or skewed on the elevated side. The sole and waist of the boot should be hammered on an old iron last and should not be allowed to take a convex shape. With this modified form of boot, without the filled-in waist, it is essential that it should be made of strong leather, as there is a considerable tendency for it to sag after the heel has been crooked. The thickness of the wedge varies in different cases from one-eighth to one-third inch, though a quarter-inch wedge, if properly applied, is usually sufficient.

The effect of raising the outer side of the boot is to throw strain of the body weight somewhat inward while the patient is standing, and by making him walk, as it does, with the toes turned out, the line of strain in walking is also inclined toward the inner part of the foot. For this same reason—that the patient walks with the toes turned out—the external lateral ligaments of both ankle and knee are relieved of strain and the body weight is largely borne by the outer half of the knee-joint. The raising of the inner side of the boot relieves the internal lateral ligaments of ankle and knee, and the body weight is transmitted mainly through the inner half of the knee-joint.

The foot is a sort of compound lever made up of a number of parts connected together by what are practically hinge joints, whose axis of movement is, roughly speaking, in the long axis of the foot. To preserve the full action of these hinge joints it is obvious that the line of strain, or, in other words, the direction of forward movement of the body, must correspond fairly nearly with the line of the long axis of the foot; any marked deviation between these two lines will throw some of these joints more or less out of action, and will put an untoward strain on those still left in use. If the deviation is great the gait will become stiff, owing to the fact that the hinge action of most parts of the foot is in abeyance. Apart from the effect the position of the foot has on its movement, it must be remembered that all parts of the arch of the foot are not equally adapted for strain, for the inner side is mechanically less able to bear weight than the outer.

As the result of experiments it has been found that, taking into consideration the movements of the parts and the capabilities of the different parts of the arch to bear strain, the ideal line of strain should pass from the center of the heel approximately through the head of the third metatarsal. Though progression is, in sum, directly forward, the body actually swings slightly from side to side as the weight is thrown successively on to each foot, so that the line of strain or direction of swing is somewhat divergent in the two feet.

REVIEWS.

DEVELOPMENTAL PATHOLOGY. A Study in Degenerative Evolution. By Eugene S. Talbot, M.S., D.D.S., M.D., LL.D. With 346 Illustrations. Richard G. Badger, The Gorham Press, Boston, 1912.

The volume comprises an introduction and twenty-eight chapters. The range of discussion embraces fundamental, one might say primitive, facts upon which a towering superstructure of speculative hypothesis is constructed. The data, evidently intended to be basal, are often vaguely presented and are not without errors; for example (p. 6), the human ovum is said to be "typically multicellular." The chapter headings do not represent the matter considered and need not be given in detail. The chapter entitled "Development of Man" should have been called "Phylogeny and Ontogeny." The several chapters dealing with the head, and especially with the facial bones, are better balanced and clearer than the others. The attempt to trace malformations to the influence of some subtle undefinable quality called, for want of a better term, "stress," and the further effort to establish certain periods of stress, do not appeal to the reviewer as making for clearness. An error all too common in modern medical writing is to name a thing, often itself a purely hypothetical body, and to proceed with the argument as though the mere act of naming had settled the matter. By this method inordinate speculation rises to the dignity of hypothesis, and theory, often feebly grounded, appears as established fact. To say (p. 107) that an unstable nervous system (whatever that may be) "is one not properly developed or weakened" is simply to apply words without using them. Again we are told (p. 129) that overdevelopment may cause similar instability. It is stated (p. 108) that disease of the pituitary results in either dwarfism or giantism; one might as well say that disease of the thyroid results in manifestations of hypothyroidism or of hyperthyroidism. Neither statement is in full accord with known data. It would be interesting to learn upon what basis the author rests his statement (p. 109) that alcohol exerts a deteriorating influence on the ovaries and testicles. The alcoholic becomes the alcoholist (p. 110), and the influences of alcohol and opium on the evolution of the race and of the individual are dogmatically stated. There is some consolation in the suggestion that laziness is a degenerative tendency; employers of labor have feared that it was evolutionary. Then we are further shocked by the assertion that (p. 153), "strictly speaking, every individual is a degenerate." The flat-footed man is a degenerate and is cast into the anthropoid ape stage (p. 151). Certain developmental defects involving the intestine are classed (p. 147) under "degeneration of the bowels." Illustrations (original) of a "murderer," "a successful lawyer," "an actor," and of "smart," "eccentric" and "fairly intelligent" "business men" are introduced to "prove" assertions in the text. The chapter on "Pus Infection" (p. 259), the use of the term osteomalacia (p. 247), and the summary (p. 271) on pus production in interstitial gingivitis are superior examples of pathological speculation and inexactness.

That the work abounds in what might have been deleted or better not said is evident; there is, however, much that is true and some that is of value. The relation of facial, and particularly of jaw and palate, development to mentality needs careful study and sober discussion; the problem merits a philosophic view less discursive than but nor far afield from what the present volume is presumably intended to contain. More fact—true facts—extended investigation of cases, and less speculation would have added to the value of the work.

W. M. L. C.

THE CARE OF THE INSANE AND HOSPITAL MANAGEMENT. By Charles Whitney Page, M.D. Boston: W. M. Leonard, Publisher, 1912.

The author has presented the subject of the modern care of the insane in a small volume but in a very attractive form. The subject is treated as follows: The non-mechanical restraint of the insane, the constitution of the boards of trustees of hospitals and their duties, the qualifications of the hospital superintendent and assistant physicians, the "non-restraint" care of patients, and the question of the attendants and nurses. These subjects are all discussed on a high plane and all from the point of view of the grave moral responsibilities which the care of the insane implies. The necessary qualifications of the nurse are considered in detail. We are disappointed, however, in not finding such practical questions discussed as, for instance, the proportion of nurses to patients, nor a detailed consideration of the actual course of training, lectures, etc., such as is pursued in modern training schools. Admirable as this little volume is, we feel also that the emphasis placed upon non-restraint is rather belated and may perhaps inadvertently give rise to an incorrect impression, for the present age has been preëminently one of non-restraint.

The author deals largely with generalities, and we find no discussion of such practical questions as the classification of patients in the various wards, character of clothing, food, expense of maintenance, etc. However, the author may not have considered these subjects within the proper scope of his book. F. X. D.

PSYCHOTHERAPY. By James J. Walsh, M.D., Ph.D. New York and London: D. Appleton & Company, 1912.

The volume before us consists in reality of a treatise upon the practice of medicine; all subjects are alike considered, from functional neuroses to typhoid fever, cancer, and arthritis deformans. It would be unjust to infer that the author relies exclusively upon psychotherapeutic methods in treatment. An examination of the pages reveals the fact that other methods of treatment are considered in addition to suggestion. The author discusses in full the various forms of suggestion, mental healing, mind cures, faith cures, etc. In his discussion of hypnotism we are relieved to note that the author believes "there is no justification for its habitual use." We are somewhat disappointed at the brevity with which the subject of psychoanalysis is treated. While it is probable that psychoanalysis—at least the psychoanalysis of the Freud school—will not remain with us permanently, its present prominence would justify a more extensive consideration than that given to it by the author.

The danger of the employment of psychotherapy is that which attaches to all forms of special treatment, namely, the exclusion of other methods, physiological, medicinal, mechanical, etc. This we believe the author has endeavored to avoid, though like almost all writers upon special subjects, he—with perhaps pardonable enthusiasm—overemphasizes the importance of the method of which he treats.

SALVARSAN IN SYPHILIS AND ALLIED DISEASES. By J. E. R. McDonagh, F.R.C.S. The Oxford University Press, New York, 1912. Price $3.00.

Although a number of brochures have been published by those who are interested in salvarsan from the commercial standpoint, and myriads of articles have appeared in medical journals concerning this substance, there is room in medical literature for just such a volume as that now under notice. The object of the writer is to describe salvarsan and to relate its history and that of its forerunners, to explain the method of its injection, to estimate its potency as a specific against the spirochæta pallida, to state with impartiality what it does do and does not do, its uses and abuses, and to demonstrate these facts by actual cases cited in arriving at an accurate estimation of its value. As the author points out, salvarsan like all other new remedies has passed through the stage of its extravagant laudation and extravagant abuse. The volume is excellently prepared from the publishers' standpoint and contains a number of colored plates which are unusually good both in execution and be-

cause they represent actual clinical conditions. It is to be remembered that the book does not deal alone with the use of salvarsan in syphilis, although of course by far the greater number of pages is devoted to this subject, but also has a chapter discussing its use in other parasitic diseases such as malaria, recurrent fever, sleeping sickness, filaria, and bilharzia. The author is very positive in his belief that salvarsan is not deleterious to the optic nerves and tracts, and equally positive that in the early stages of syphilis it is an absolute specific. Of course in the later stages when parasyphilitic conditions are present and actual degenerations have taken place, it is impossible for any remedy to exercise the effects which it can produce when used early enough to actually combat the infection.

COMMON DISORDERS AND DISEASES OF CHILDHOOD. By George Frederic Still, M.A., M.D., F.R.C.P. Second Edition. The Oxford University Press, New York, 1912. Price $5.50.

Dr. Still, who is Professor of Diseases of Children in King's College, London, is well known to general practitioners and specialists in diseases of children in this country and abroad for the excellent work which he has done in the diseases of infancy. As Physician to the Great Ormond Street Hospital for Sick Children of London he has unusual clinical opportunities. The title of his book, which is rather an unusual one, conveys the main purpose which the author had in mind, namely, to deal with the common diseases of childhood, not to the exclusion of the rare ones, but with the idea of recognizing the fact that it is the common diseases which are of most interest to general practitioners. Special attention has been given by the author to the development of diagnosis and treatment, and where pathology and morbid anatomy aid in diagnosis and treatment, sufficient details are given concerning them to make the diagnosis comparatively easy and the treatment accurate. We are glad to note the strong emphasis which he puts upon the importance of breast-feeding of infants in distinction from bottle-feeding. The author states that taking haphazard thirty cases of convulsions in infants under nine months of age he finds that twenty were entirely hand-fed at the time of the convulsions and only eight were entirely breast-fed. Other statistics of a similar nature are also quoted. As is proper in a book of this kind, much attention is given to the matter of infant feeding when artificial means are essential, and minute details are given as to the drugs which should be used when they are indicated. These prescriptions are evidently those of an active practitioner who uses his formulæ from day to day with sufficient success to lead him to believe that they are useful compounds. The book serves to maintain Dr. Still's reputation and will certainly continue to be popular.

MASSAGE AND SWEDISH MOVEMENTS. By K. W. Ostrom. Seventh Edition, Revised and Enlarged. Illustrated. P. Blakiston's Son & Co., Philadelphia, 1912. Price $1.00.

This is a small handbook of about 200 pages written by a practical masseur in order to inform students of massage and physicians as to the Swedish movements and as to the use of massage in the treatment of disease. In other words, it informs physicians what may be done by these measures along legitimate lines without claiming for either massage or Swedish movements the ridiculous basis upon which rests the opinion of many quacks concerning their advantages. It is probably true that regular physicians give too little attention to Swedish movements and massage and thereby aid in driving their patients into the hands of charlatans, who are only too ready to make excessive claims for their methods.

PROGRESSIVE MEDICINE. A Quarterly Digest of Advances, Discoveries and Improvements in the Medical and Surgical Sciences. Edited by Hobart A. Hare, M.D., Assisted by Leighton F. Appleman, M.D. Volume II, June, 1912.

This issue of Progressive Medicine contains, as have other issues, in the quarter ending the month of June, articles upon Hernia by Dr. William B. Coley, of New York; the Surgery of the Abdomen, Ex-

clusive of Hernia, by Dr. John C. A. Gerster, of that city; Diathetic and Metabolic Diseases, Diseases of the Spleen, Thyroid Gland, Nutrition and Lymphatic System, by Dr. Alfred Stengel; and Ophthalmology, by Dr. Edward Jackson. The object of each author to present in his article the important advances made in these departments during the previous twelve months has been successfully carried out, so that the surgeon or physician has placed in his hands correct information which he can readily employ in practice, and this information is added to by the personal criticisms or suggestions of the contributor who writes upon his special line.

THE PRACTICAL MEDICINE SERIES. Edited by Gustavus P. Head, M.D., and Charles L. Mix, A.M., M.D. Volume I, General Medicine, Edited by Frank Billings, M.D., and J. H. Salisbury, M.D. The Year Book Publishers, Chicago, 1912. Price $1.50.

As our readers probably know, this volume is one of ten which is brought out annually by its publisher, each volume dealing with some department of medicine. It is quite freely illustrated and consists chiefly in a series of abstracts well chosen from current medical literature.

CLINICAL METHODS. A Guide to the Practical Study of Medicine. By Robert Hutchison, M.D., F.R.C.P., and Harry Rainy, M.D., F.R.C.P. Copiously Illustrated in Black and White and Colored Plates. Fifth Edition, Revised. Cassell & Company, New York, 1912. Price 10s. 6d.

We welcome the appearance of the fifth edition of this excellent little manual, which, though it contains some 650 pages, is nevertheless small enough to fit in the side pocket of a sack coat. Five editions have appeared since September, 1897, and each time the authors have had sufficient pride in their work to bring the volume up to date. We do not know of any book which contains so much excellent material in so small a space and yet at the same time so successfully avoids the charge of being incomplete. Not only does it deal with ordinary physical diagnosis, but with the urine, the skin, the eye, ear, nose and throat, clinical examination of children, and the examination of pathological fluids. The final chapter is upon clinical bacteriology, and this is followed by an appendix in which various formulæ are given as to standard solutions which are used in the clinical laboratory. The colored plates, of which there are thirteen, are excellent.

SURGICAL AFTER-TREATMENT. By L. R. G. Crandon, A.M., M.D., and Albert Ehrenfried, A.B., M.D. Second Edition, Revised. Illustrated. W. B. Saunders Co., Philadelphia and London, 1912.

Postoperative treatment is an alluring title to all surgeons, nor should any individual be content to classify a book thus named and written by responsible and experienced men without something more than a hasty glance at the table of contents and a perusal of a page or two bearing upon the topic of special interest to the reader at the instant. The book has been written for house surgeons in hospitals and general practitioners in communities which are not surgical centers, and the authors state that every procedure advised has stood the test of practice and will safely do for the reader until, from his own experience, he develops his own methods. This is in the main entirely true. It would have been well to have mentioned under the subheading of Restlessness Following Operation that this condition is one of the most significant early ones of hemorrhage. Under Sweating to have called attention to the difference between the florid sweat and the pallid sweat. The directions in regard to thirst are excellent, and Sexton's apparatus for Proctolysis receives the commendation which it deserves. The subcutaneous saline infusion is so generally substituted by proctolysis or in case of urgent need by the intravenous injection that this circumstance seems worthy of note. The technique of Transfusion is described in minute detail. Shock is discussed from the physiological standpoint, and the theory of the exhaustion of the vasomotor center is rejected. He has, however, none better to replace it. The treatment is described in most satisfactory detail. The subject of Diet after Operation and Lavage, Care of the Bowels and

Acute Intestinal Obstruction, including Acute Gastric Dilatation, Postanesthetic Pneumonia, Acetonemia, Bandaging, Drainage, Bier's Hyperemia, Bismuth Paste, Habits and Their Relation to Surgical Conditions; Postoperative Psychoses; Bedsores: Causes; Prevention; Treatment; Artificial Limbs; Preparation of the Patient and the Surgeon; Operation on the Neck, the Chest, and the various Organs—these are considered from the standpoint of one who has to deal with all the minute details of after-treatment which is often quite as important as is operation in itself. To one lured by the title of this work the subject-matter will thoroughly commend it.

CORRESPONDENCE.

LONDON LETTER.

BY J. CHARLTON BRISCOE, M.D.

The Royal Society of Medicine is now housed in its new home, and the building was formally opened by His Majesty the King. Replying to an address of welcome the King congratulated the Society on the way in which its needs had been provided for, so that its varied functions could now be carried on unhampered by lack of space. Their majesties then made a tour of the building and congratulated the members of the building committee on the result of their labors.

A bill for the better control of feeble-minded persons is now before Parliament. This bill enables the Lunacy Commissioners to license institutions for the purpose of the detention of persons certified as feeble-minded, and empowers magistrates to commit persons certified as such to these institutions. The object of the bill is to prevent the increase and propagation of half-witted people and degenerates. The Home Secretary acknowledged that the subject is one demanding immediate attention and said that the government was prepared to provide a yearly sum of money to finance suitable homes. He pointed out that to many of the feeble-minded the greatest misery of their lives was the responsibility of liberty, but that kept under protection and with suitable conditions they led happy lives. Owing to the extremely congested state of the government programme it is very doubtful if the bill will get far this session, but in the interests of the community it is to be hoped that the House of Commons will find time to give as much attention to the subject as it deserves.

The whole question of the physical and mental improvement of the race will be threshed out at the first International Eugenics Congress to be held at London University the last week in July. At this meeting an attempt will be made to define what practical steps can be taken toward this end. As all the various schools of heredity intend to send representatives we may anticipate some very interesting discussions. The general public still regard the subject of eugenics with grave suspicion, and believe that the regulations to be enforced will restrict the liberty of the subject. Of course the great difficulty will center in the definition of a mentally defective person, as there is always the chance of grave injustice being done to persons of slow mentality but who are not actually defective. If, however, care were taken to include only a very low grade—*i.e.*, persons who are obviously hopeless and incapable—until more experience in the subject is gained, this pitfall ought to be avoided.

A libel case involving rival theories as to the causation of cancer has just been concluded in the Law Courts. The plaintiff, Dr. Robert Bell, wrote a book in which he described his conception of the causation of cancer, and in which he also gave a description of his methods of treatment. He then proceeded to attack other theories and methods of treatment in unequivocal language. The defendant, Dr. Bashford, the superintendent of the Laboratories of the Imperial Cancer Research Fund, met this attack by asserting in an article in the *British Medical Journal* that "the plaintiff wrote his book for personal gain or from vanity or ignorance." This article was

published in a special number devoted to the topic of "Quacks and Quackery." In his book Dr. Bell, who is a properly qualified medical practitioner, contends that cancer is a preventable disease and is primarily due to a disordered condition of the blood, induced through the overeating of meat and other forms of flesh, and especially of dead or cooked tissues. He therefore advocates the adoption of a more vegetarian diet, consisting of raw fruit and vegetables, supplemented by living animal tissues such as milk and eggs. He also asserts that by the microphotography of the blood he can tell if the patient is cancerous or not. In the result the jury returned a verdict for the plaintiff and awarded Dr. Bell £2000 in damages. This verdict was received with applause. The verdict of the jury does not in any way indorse Dr. Bell's views as to the cause and treatment of cancer, but may rather be taken as due to a feeling on the part of the public that no honest investigation into the causes of such an obscure disease as cancer ought to be checked by unfair criticism because it has wandered from the paths of orthodoxy.

The medical officer of health for Walsall has drawn attention in his annual report to the results of the efforts made in our elementary schools to keep up a good average attendance. He considered that the spread of infectious illnesses was largely due to this pressure, as children who were aspiring to a medal for perfect attendance continued to attend school when they would have been better in bed. He had also noticed that during the delirium of illness, among a certain class, the topics were always school work or school attendance.

Although the water supplied to Londoners in late years has always been of excellent quality the Metropolitan Water Board are determined not to rest on their oars. One of the most important works now being constructed is the Chingford reservoir, which will probably be completed this year. This new storage will have a capacity of about 3,000,000,000 gallons, and the pumping machinery will be capable of passing over 200,000,000 gallons per day from the reservoir into the mains. This new reservoir will contribute to the supply of the whole of London, as under the scheme of federation all the sources of supply are linked up by means of great mains and the water "pooled" among all the districts of the metropolis. Although the capital's demands for water are constantly increasing, the possibility of a water famine is extremely remote, thanks to the foresight of the Metropolitan Water Board.

The battle of the sites for London University still goes on, and the latest news is that offers of donations amounting to £300,000 have been withdrawn. It is stated that "the donors are getting restive" at the long delay in deciding upon some scheme. Various schemes have been pushed by different parties, but the Senate has now decided to set about selecting a site and raising the necessary money. The site that will offer the greatest possibilities from an architectural point of view is one on the south bank of the Thames close to Westminster Bridge, but it is possible that this position may not be considered sufficiently convenient, as most of the colleges affiliated with the University are situated on the north bank of the river.

The Royal Hospital at Chelsea was recently honored by a visit from the King and Queen, who spent a considerable time inspecting the pensioners and examining the buildings. This ancient hospital was founded by King Charles II., and in honor of the occasion the statue of the founder was decorated with oak foliage. The hospital is situated in spacious and picturesque grounds stretching down to the banks of the Thames, and here a large number of veteran soldiers and sailors pass the remaining years of their lives amidst pleasant surroundings.

The progress of the Homeric fight between Mr. Taft and Mr. Roosevelt is being watched with considerable interest on this side of the Atlantic. The intricacies of the electoral procedure are somewhat difficult to follow, but the accounts of the preliminary skirmishes are very racy, and compared with them our own political elections seem but tame and dull affairs.